

FINAL LISTING SITE INSPECTION REPORT
FOR THE BITTERROOT VALLEY SANITARY LANDFILL

VICTOR, MONTANA

TDD F08-9005-08 - PAN FMT0052XAA

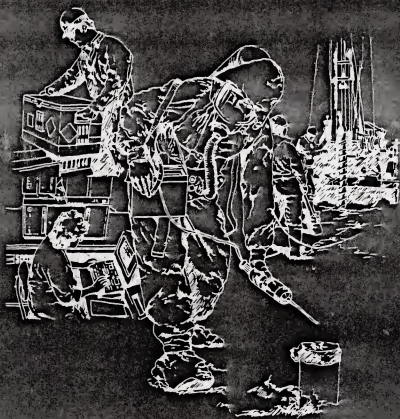
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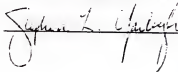
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1.0 INTRODUCTION

Under the provisions of Technical Directive Document (TDD) F08-9005-08, the Region VIII U.S. Environmental Protection Agency (EPA) tasked the Ecology and Environment, Inc. Field Investigation Team (FIT) to perform a Listing Site Inspection (LSI) at the Bitterroot Valley Sanitary Landfill (BVSL) site located in Victor, Montana. The sampling plan was submitted on August 9, 1990. The FIT sampling team included Kevin Mackey (Project Officer), Stacey Smith (Sampler), John DuWaldt (Sampler), John Brown (Site Safety Officer), and Dan Kenney (Sampler/Driller). Samples collected during this LSI included 22^v ground water samples, 7 surface water samples, 7 sediment samples and 4 soil boring samples. All samples were submitted for base/neutral/acid extractable organics, pesticides, volatile organic compounds (VOCs), and inorganic analyses. Soil boring samples BR-SO-1 through BR-SO-4 were also submitted for dioxin analysis. Organic fractions were shipped to Southwest Labs of Oklahoma in Broken Arrow, Oklahoma, while inorganic fractions were shipped to Skinner and Sherman, Inc. in Waltham, Massachusetts. Dioxin samples were shipped to Southwest Research Institute (SWRI) in San Antonio, Texas. All organic Regular Analytical Service (RAS) analyses were performed under case #14772-5511HQ, while inorganic analysis was performed under case #5512HQ. Dioxin analysis was performed under Special Analytical Services (SAS) #5641H. All samples were shipped within the required holding times under proper chain of custody.

2.0 OBJECTIVES

The FIT identified seven primary objectives in the site sampling plan. These objectives were to:

- o Identify and characterize wastes attributable to the site;
- o Document an observed release of site contaminants to area ground water;
- o Assess the potential (or document an existing) release of site contaminants to surface water bodies near the site;
- o Evaluate the soil exposure potential;
- o Gain a detailed count of the onsite and nearby target populations;
- o Document potential Level I and/or Level II contaminant concentrations in private drinking water wells near the site;
- o Document waste quantity and characterize containment for onsite contaminants through sampling or file reviews.

3.0 BACKGROUND

3.1 LOCATION AND SITE DESCRIPTION

The Bitterroot Valley Sanitary Landfill is located in the southwest quarter of Section 31, Township 8 North, Range 20 West, in Ravalli County, approximately one mile south of Victor, Montana (Figure 1). It is situated at the eastern edge of a low terrace about one-half mile west of the Bitterroot River near the site of an abandoned gravel pit. The topography at the site slopes northward toward the North Channel of Bear Creek and eastward to the Bitterroot River with slopes ranging from about one percent to ten percent. An average elevation of 3,460 feet above mean sea level is indicated from Figure 1, although landfilling

operations have probably caused significant changes in the terrain of a swale area west of the old gravel pit.

In a regional context, the site lies within the Bitterroot Valley, a north-south trending intermontane basin approximately 300 square miles in size, and located south of Missoula, Montana. The valley is bounded on the east by the Sapphire Mountains and on the west by the Bitterroot Range. As described by McMurtrey et. al. (1972), the valley has an average width of seven miles and is approximately 45 miles in length.

Agriculture, lumber and tourism comprise the main economic base of the valley. Agriculture is predominantly irrigation farming with dryland farming limited to small areas on the western slope of the Sapphire Mountains. The principal crops are forage crops, sugar beets, potatoes, small grains and fruit (McMurtrey et. al. 1972). The majority of irrigated acreage is supplied by tributary streams, the remainder is supplied by the Bitterroot River and irrigation wells. In 1958, the Montana State Engineer estimated that about 104,000 total acres are irrigated in the valley.

McMurtrey et. al. (1972) described the climate near the Bitterroot Valley as being characterized by mild winters, cool summers, light precipitation and very little wind. During 1912 to 1959, the annual precipitation at Stevensville (located approximately 25 miles north of the landfill) averaged 12.75 inches with more than 25 percent of the yearly precipitation occurring in May and June. Precipitation is considerably greater in the Bitterroot Range than in either the Sapphire Mountains or the valley.

3.2 SITE HISTORY AND PREVIOUS WORK

The following discussion is based on information gathered from Montana Department of Health and Environmental Sciences (MDHES) files and several Chen-Northern reports.

According to the Preliminary Assessment conducted by the MDHES, the site is owned by Mr. Charles W. Mann of Victor, and is operated by Mr. Richard Moraca (manager), also of Victor. Landfill operations began in 1966 serving Hamilton and northern Ravalli County. The site is currently active. In 1978, Mr. Mann applied for a Montana solid waste management system license and was granted a permit to accept Group II and III wastes, septic pumpings and liquid wastes excluded. This permit conditionally allowed the disposal of small quantity hazardous wastes in amounts not to exceed 100 kilograms (kg) per month per waste generator, or a total of 200 kg per month at the landfill. The majority of known hazardous waste disposed at the landfill originated from the U.S. Department of Agriculture's Rocky Mountain Laboratory located in nearby Hamilton, Montana. The minimum total hazardous waste quantity is estimated at 1295 kg during the period 1981 through 1985. Monthly reports submitted to the MDHES indicate that a variety of volatile organic compounds (toluene, xylene, chloroform, etc.), metal salts (silver, mercury, arsenic, osmium, etc.) and phenol were disposed of onsite. Additional immunological waste materials, including potentially pathogenic wastes from Ribi Immunochem Research, Inc. of Hamilton, Montana, have also been disposed of at the site. Although these materials technically fall under CERCLA authority, FIT has not pursued any sample analysis for medical research generated material. Disposal practices and hazardous waste quantities prior to 1981 are unknown. Several letters to the operator requesting compliance with permit conditions, specifically soil cover, ground water monitoring and disposal of hazardous materials and liquid wastes, are on file with the MDHES up to August 8, 1985.

A preliminary site evaluation was conducted in 1975 by members of the U.S. Department of Agriculture, Soil Conservation Service at the request of the Ravalli County Sanitarian. This evaluation included an onsite inspection of geology and soils, ground and surface water, including several backhoe test pits. The operator initiated a ground water monitoring program in 1982 consisting of four monitoring wells with at least one monitoring well installed specifically for monitoring

purposes. A fifth monitoring well (BR-GW-2) was installed in 1986 east of an onsite trailer (Figure 2).

3.3 SITE GEOLOGY, HYDROLOGY, HYDROGEOLOGY AND METEOROLOGY

3.3.1 Site Geology

The BVSL lies in the north-south trending trough partially filled with unconsolidated to consolidated Cenozoic sediments. These sediments are greater than 1,640 feet thick at their deepest point (McMurtrey et. al. 1972). The valley is bordered by mountain ranges composed of Precambrian to Tertiary shales, argillite, limestone, granite and various volcanic rocks whose erosional products form the majority of valley fill deposits.

Surficial and shallow geologic deposits in the Victor area consist of floodplain alluvium and alluvium of the low and high terraces (McMurtrey et. al. 1972). The site is situated on alluvium of the low terrace which is described as unconsolidated sand, gravel and silt that includes glacial drift and reworked glacial drift deposits. In 1975 the U.S. Department of Agriculture (USDA) found a series of stratified deposits ranging in size from silt to cobbles. Most of this material was a clean, poorly-sorted sand containing minor amounts of gravel and cobbles. The depth of their investigation was limited to about seven feet.

Alluvium of the low terrace is laterally extensive occupying much of the central valley and major tributary stream courses. It is traversed by the Bitterroot River and associated floodplain alluvium along the entire length of the valley. These deposits are derived mainly from the low terraces, which have a similar lithology but are generally more poorly sorted compared to floodplain deposits. Floodplain alluvium in the Victor area ranges in width from 0.7 to 1.7 miles and averages approximately 40 feet in thickness.

According to McMurtrey et. al. (1972), bedrock composed of Precambrian sedimentary rocks (Belt Series) probably underlie much of the valley fill. The depth to bedrock at the BVSL is unknown, but exceeds several hundred feet based on local well logs.

3.3.2 Site Hydrology

The North Channel of Bear Creek is the principal drainage near the BVSL site. It is an intermittent stream which joins the Bitterroot River about one-half stream mile east of the site. Above the site at an old USGS gaging station, Bear Creek is perennial; from this point it bifurcates into two intermittent reaches known as the North and South Channels. These reaches are intermittent due to extensive diversions for irrigation and rapid streambed infiltration over coarse-grained alluvial terrace materials. The North Channel of Bear Creek further bifurcates just west of the site, as shown in Figure 1.

Discharge records are unavailable for the North Channel of Bear Creek; however, useful information is available for Bear Creek above the site. The drainage area at the old USGS gaging station is estimated at 26.8 square miles. Records are available for the periods April 1938 through December 1954 and September 1957 to September 1959. The maximum discharge recorded was 1,340 cubic feet per second (cfs) on June 16, 1950 and the minimum discharge recorded was 0.7 cfs on December 1, 1952. Hydrographs for Bear Creek during water years 1958 and 1959 illustrate that peak discharge normally occurs in May and June corresponding with the wettest precipitation months and snowmelt from the Bitterroot Range (McMurtrey et. al. 1972).

The Bitterroot River near Victor is slightly braided, having at least two distinct channels at the mouth of the North Channel of Bear Creek. These channels join one mile below Victor. Discharge records for the Bitterroot River near Victor are unavailable. The closest gaging station is at Florence, Montana. This station has records from September 1957 to the present.

Surface water downstream of the site is primarily used for irrigation and recreation (fishing and hunting). Based on an initial review of water rights provided by the Montana Department of Natural Resources and Conservation, Water Rights Bureau (MDNRC/WRB 1987), the Bitterroot River is considered the surface water body of concern under this site inspection. There are no registered downstream users along the North Channel of Bear Creek from the site to its confluence with the Bitterroot River, although numerous diversions exist upstream below the USGS gaging station. Diversions for irrigation water along the Bitterroot River are found in Township 8 North, Range 20 West, Sections 20, 29 and 32. The precise location of these diversions is difficult to ascertain from the computer printout owing to the braided nature of the river channel.

3.3.3 Site Hydrogeology

3.3.3.1 Ground water occurrence and distribution

Ground water in the Victor area occurs primarily in the alluvium of the Bitterroot floodplain and low terrace. These units have similar water bearing properties and ground water chemical characteristics and consequently are treated as a single aquifer system for the purposes of this study. Valley fill alluvium is considered the aquifer of concern based on the predominance of local domestic and irrigation wells completed in this formation compared to the underlying bedrock. Within a three mile radius of the site, over 260 registered private wells serve an estimated target population that exceeds 990 persons. Most wells seldom exceed 100 feet in depth (MDNRC, WRB 1987). The closest private well is estimated to occur about 300 feet northeast (downgradient) of the site (BR-GW-4). Well yields of several hundred gallons per minute (gpm) or more are possible from the valley fill alluvium (McMurtrey et al. 1972). Ground water in the alluvium is unconfined, and there is a high probability of contaminant migration due to the presence of high permeability, coarse-grained formation materials.

Shallow ground water flows east from the site to the Bitterroot River where it follows the direction of the river. This flow pattern is consistent with the topography and with the concept of aquifer recharge by precipitation and tributary streams along the mountain front areas to the east and west. Discharge occurs principally by seepage to the Bitterroot River, wells pumping and evapotranspiration. The depth to ground water at the site is variable due to topography, but generally occurs between 20 to 60 feet below ground surface (USDA 1975).

During the Screening Site Inspection (SSI) at this site, potentiometric data were compiled for the purpose of assessing the local ground water flow direction (Ecology and Environment, Inc. 1989). The FIT utilized the services of Eli and Associates (registered land surveyors, License #37135) of Missoula, Montana to establish vertical elevation control at the wells. The elevations at each well were measured at a reference mark on the top of the well casing using a Brunson 53935 level with a Wilde Theodolite and Topcon DM-53 Electronic Distance Measure. A USGS benchmark relating true elevation in the area was unavailable, thus an arbitrary elevation of 100 feet was established at BR-GW-3. From this well, the relative elevations of other wells were surveyed for potentiometric contouring purposes. The reference mark elevation of all wells are listed below.

WELL	ELEVATION (ft)	LOCATION
BR-GW-3	100	Top of well casing rim
BR-GW-8	104.49	Top of well casing rim
BR-GW-2 (Moraca)	126.89	Top of well casing rim
BR-GW-1 (Mann)	167.34	Top of well casing, north edge
BR-GW-5 (Larson)	164.27	Top of well casing
Freide Well	173.39	Top of well casing

All ground water elevation measurements were taken on September 15, 1987 using a calibrated water level indicator.

Based on water level data and the above elevation data, the FIT prepared a potentiometric surface map of the shallow alluvial aquifer at the landfill and surrounding areas (Figure 4). Due to a lack of data points in certain areas, the potentiometric contour lines are, for the most part, inferred from site observations and field water quality data. As depicted in Figure 4, ground water flow is generally eastward toward the Bitterroot River. An anomalous ground water flow pattern is evident along the 90 foot contour line near well numbers BR-GW-3, BR-GW-8 and BR-GW-2 (Figure 4A). This anomaly may be attributable to fluctuations in water level and may change on a seasonal basis. In order to gain a more accurate estimate of flow direction, an extended effort involving quarterly water level measurements should be employed; however, this effort exceeds the scope of the initial CERCLA site inspection program and falls mainly in the realm of remedial activity. Taking a cursory view of the potentiometric surface, the prevailing pattern may indicate a ground water recharge environment at and near the landfill.

Further extrapolations in ground water characteristics can be made for the hydraulic gradient and hydraulic velocity of ground water at the site. The hydraulic gradient can be obtained by dividing the horizontal water table difference between BR-GW-1 and BR-GW-3 by the distance between the two wells. The hydraulic gradient (i) is thus 0.017 ft/ft. The hydraulic velocity can also be calculated using standard ranges for hydraulic conductivity and porosity as presented by Fetter (1980). The hydraulic conductivity (k) is assumed to be 10^3 ft/day for the sand and gravel deposits at the site. Similarly, porosity (θ) for the alluvial material is assumed to be 20 to 30 percent. The calculation for hydraulic velocity is:

$$V = \frac{ki}{\theta} = \frac{103 \text{ ft/day } 0.017 \text{ ft/ft}}{.25} = 68 \text{ ft/day}$$

These calculations are estimated; however, they can be used as approximate values for conditions at the site.

3.3.4 Site Meteorology

The average annual precipitation for Missoula is 13.29 inches, while the mean annual lake evaporation equals approximately 26 inches, yielding an annual net precipitation of -12.71 inches per year. The two year 24-hour rainfall total for the Missoula region is approximately 1.5 inches (Hershfield 1961). The temperature normals for the month of July in Missoula are as follows: maximum 84.8 degrees Fahrenheit (°F), minimum temperature of 49.5°F and a mean temperature of 59.6°F. Temperature normals for August range from a maximum of 82.7°F to a minimum of 48.3°F yielding a mean monthly temperature of 65.5°F (National Oceanic and Atmospheric Administration 1982).

4.0 FIELD OPERATIONS

4.1 NON-SAMPLING DATA COLLECTION

FIT arrived onsite at 8:15 a.m. on August 21, 1990. After establishing the command post in an acceptable area, FIT personnel performed site reconnaissance to verify sampling locations and collected non-sampling data required under the revised Hazard Ranking System (rHRS). Data elements are presented in Table 1 and the results are discussed in Section 6.0. Offsite information (e.g. distance to wetland, nearest private well, nearest municipal well and land use) was obtained by visual observation, maps, and interviewing individuals living near the site.

4.2 SAMPLING ACTIVITIES

Sample collection commenced at 11:35 a.m. on August 21, 1990. The first three field days consisted primarily of ground water sampling. During this period the FIT collected ground water samples from domestic and monitoring wells.

All wells were purged and sampled according to FIT SOP III-2, Chapter 8. Field measurements of pH and specific conductance were

recorded using a pH meter and a conductivity meter. For domestic well sampling the wells were allowed to flow for approximately ten minutes until pH, specific conductance and temperature parameters stabilized. Stabilization was based on three consecutive measurements of pH and specific conductance within acceptable ranges. Monitoring wells were purged with a stainless steel bailer or a Brainard Kilman pump until pH, specific conductance and temperature parameters stabilized. All well sampling was conducted in Level D protection.

A portion of the third and all of the fourth and fifth field days were spent performing surface water/sediment and soil boring sampling.

During this investigation the FIT collected 17 ground water samples, 7 surface water/sediment samples and 4 subsurface soil samples. In addition, the FIT prepared one rinsate (decontamination blank) and one VOA trip blank.

4.2.1 Waste Source Samples

During the investigation the FIT collected four potential waste source/characterization samples. These samples (BR-SO-1 through BR-SO-4) were collected based on information provided by landfill operator, Charles Mann. Mr. Mann showed FIT personnel the location of a filled pit area, which allegedly received laboratory wastes and solvents. According to Mr. Mann, the pit dimensions were approximately ten feet deep with an approximate length of 15 feet and a width of five feet. The FIT collected several soil borings from the pit disposal area and the surrounding area. Samples were collected at a maximum 15 foot depth. The decision to sample was based on HNu or OVA readings and visual appearance of subsurface soils. In some cases samples were collected after the Mobile B-24 soil sampler reached refusal depth. Soil sample BR-SO-4, located approximately 200 feet northeast of the old disposal pit, was collected at the five foot depth interval. During the drilling of BR-SO-4, an OVA reading of approximately 12 parts per million (ppm) was obtained, indicating possible volatile organic compound contamination. Borings collected from other areas throughout

the landfill did not exhibit evidence of volatile organic compound contamination. Waste source sample locations are shown in Figure 3.

4.2.2 Ground Water Samples

During this investigation, the FIT collected 13 domestic well samples and four monitoring well samples. Domestic wells sampled during this LSI include BR-GW-1 (Mann's domestic well), BR-GW-2 (onsite well), BR-GW-4 (Wilson well), BR-GW-5 (Friede's well), D-4 (Precut Homes well), D-39 (Ellen Kittel well), D-40 (Mixon well), D-42 (Domestic well), BR-GW-18 (Jim Murphy well), BR-GW-19A (Petersen unfiltered well), BR-GW-19B (Petersen filtered well), D-43 (Philson well), and D-49 (Harvey Hunt well). Additional ground water samples collected included monitoring well samples BR-GW-3 (northernmost monitoring well), BR-GW-8 (downgradient monitoring well), BR-GW-9 (Precut Homes deep aquifer monitoring well), and BR-GW-10 (Precut Homes shallow aquifer monitoring well). Ground water sampling locations are shown in Figure 2.

4.2.3 Surface Water and Sediment Samples

During this investigation, FIT collected seven surface water and seven sediment samples from nearby Bear Creek and the Bitterroot River. Samples collected from Bear Creek consisted of BR-SW/SE-1 (upgradient sample), BR-SW/SE-2 (downgradient sample), BR-SW/SE-3 (downgradient sample), BR-SW/SE-4 (confluence of Bear Creek and the Bitterroot River), BR-SW/SE-5 (downstream of the confluence of Bear Creek and the Bitterroot River), BR-SW/SE-6 (upstream of Bear Creek confluence), and BR-SW/SE-7 (upgradient on the Bitterroot River). Temperature, pH and specific conductance were measured at each sample location (Table 4). Surface water/sediment sample locations are shown in Figure 2.

4.2.4 Quality Control Samples

The FIT maintained the integrity of each sample by following extensive decontamination procedures during sample collection. In addition, the FIT prepared one rinsate blank sample (BR-GW-14), two VOA

trip blanks (BR-GW-11 and BR-GW-12), and one duplicate sample (BR-GW-17), which duplicates the Friede well (BR-GW-5). For organic analysis the FIT submitted a triple volume sample (collected from well D-4), while a double volume from the same well was submitted for inorganic analysis. This extra volume was provided for laboratory matrix spike/matrix duplicate quality assurance checks. The rinsate blank sample BR-GW-14 was prepared by pouring organics free and metals free water over and through decontaminated sampling equipment as described in FIT SOP III-2, Chapter 11. The rinsate water was collected in the appropriate sample containers. For dioxin quality control, the FIT prepared a hexane rinsate sample by pouring laboratory grade hexane over a decontaminated stainless steel spoon and into the appropriate sample container. In addition, the FIT submitted five dioxin performance evaluation samples to the proper contract laboratory program (CLP) laboratory for quality assurance/quality control (QA/QC) purposes.

4.3 QUALITY CONTROL

4.3.1 Sample Containers

The sample containers used for this investigation included one-liter polyethylene bottles (metals fractions for water samples), 80-ounce amber glass bottles (base/neutral/acid and pesticide fractions for water samples), 40-milliliter vials (volatile organic compound analysis for soil and water samples) and eight-ounce glass jars for both solid metals and organic fraction analysis.

4.3.2 Background Samples

Background samples collected for this investigation will be used for comparison to downgradient samples to establish any CERCLA releases. Sample BR-GW-1 is a ground water sample collected from Charles Mann's domestic well located upgradient of the landfill site. BR-SW/SE-1 and BR-SW/SE-7 represent upgradient conditions on Bear Creek and the Bitterroot River, respectively.

4.3.3 Instrument Calibration

The OVA and HNu were calibrated daily in the field according to manufacturer's instructions. The specific conductance meter was calibrated daily using standards of 37.5, 375 and 3750 micromhos per centimeter. The pH meters were calibrated to pH solutions of 4, 7 and 10 according to manufacturer's specifications.

4.4 DOCUMENTATION

After collection, all samples were handled in strict accordance with chain of custody protocol described by the NEIC Procedures Manual for the Evidence Audit for Enforcement Investigations by Contractor Evidence Audit Teams, April 1984 (EPA-330/9-81-003R). Appendix B summarizes sample documentation, including sample numbers, sample tags, traffic reports, chain of custody, and airbill numbers.

4.5 OBSERVATIONS

The following observations were made during the sampling activities and general reconnaissance of the site and the surrounding area:

- o Weather conditions varied greatly during this investigation. Morning temperatures generally ranged from mid-60s to lower 70s with some precipitation occurring in the form of rain on the morning of August 25, 1990. Afternoon temperatures rose to the mid-80s on several days during the course of this LSI.
- o This site was fenced, however gates prohibiting access were not closed and locked during evening hours.
- o There was an old waste receiving pit located in the southwestern corner of the landfill. According to the landfill owner (Charles Mann), the pit was roughly ten feet deep with an approximate length and width of 15 feet and five feet, respectively.

- o Measurements of the landfill burial area yielded a surface area of 388,500 square feet with an average deposition thickness of 15 feet resulting in an approximate waste quantity of 215,833 cubic yards of deposited material.
- o Manifests provided to the FIT by Charles Mann (Appendix C) provided hazardous constituent quantity of approximately 1295 kilograms of hazardous materials deposited in the waste receiving pit. Wastes deposited included asbestos, ethanol, methanol, ethyl ether, chloroform, hydrochloric acid, trifluoric acid, silver salts, sodium oxide, acetone, acetonitrite, acrylamide, benzene, pyridine, xylene, cyclohexane and formaldehyde.
- o Surface runoff from the site travels eastward via overland flow toward the Bear Creek and Bitterroot River drainages. Onsite observations did not yield an obvious probable point of entry (PPE) of site runoff into either of the aforementioned drainages.

5.0 DATA VALIDATION

5.1 ORGANIC DATA

The data for this case was of high quality and very few qualifications were necessary to render the data usable and acceptable. A majority of data qualifications were blank related, while all other quality assurance parameters were within acceptable control limits.

Contaminants were found in all blanks. The common laboratory contaminants methylene chloride and chloroform were found in VOA blanks. If these analytes were detected in samples at levels less than ten times the amount in associated blank, then the laboratory qualifiers "bj" or "b" were changed to "u" and the sample concentrations changed to the sample quantitation required limit (SQRL). Acetone was not detected in any VOA blanks; however, it was identified in the raw data and was flagged "b" for being present in the laboratory blank. In these instances the "b" qualifier was eliminated.

Three different phthalates were found in the BNA water blank. Phthalates are common contaminants associated with plastics and may be the result of insufficient cleaning or the use of plastic containers.

All BNA results in sample D-40 were flagged "j" because of a lengthy holding time (27 days), which exceeds the control criteria of 7 days.

Although there were some other minor quality control problems, no other positive data were affected.

5.1.1 Soil Sample Data

Slight concentrations of two contaminants were found in the BNA soil blank. If any of these contaminants were found in samples at levels less than five times the amount in the associated laboratory blanks, then the same qualifications assigned to aqueous samples were rendered. Except for the aforementioned exceptions, all other quality assurance parameters were within acceptable control limits.

5.2 INORGANIC DATA

After quality assurance reviews of inorganic soil and water samples, the results were judged acceptable by FIT chemists with the following exception: all standard correlation coefficients are greater than 0.995 with the exception of arsenic (0.994) and selenium (0.991). These elements are estimated and are flagged "j".

6.0 RESULTS

Non-sampling data and analytical results are presented in the following section. Information collected to characterize waste sources is presented first followed by presentations of results specific to each migration pathway.

6.1 WASTE CHARACTERISTICS

Materials deposited in the Bitterroot Valley Sanitary Landfill consist of both organic and inorganic Toxic Compound List (TCL) contaminants. Among the substances deposited in the landfill are ethanol, methanol, butanol, mercury salts, silver salts, acetone, chloroform, formaldehyde, phenol, toluene, pyridine, ether, arsenic salts, osmium tetroxide, acetonitrile, silver salts in solution, and xylenes. (This list is not comprehensive. For a complete inventory please see Appendix D).

All of the aforementioned materials were buried in a solvent disposal pit located in the southwestern corner of the landfill. According to Charles Mann, this material was deposited in an unlined disposal pit measuring approximately 15 feet long by five feet wide, with an approximate depth of 10 feet.

The major pathway of concern associated with the pit disposal method appears to be the ground water pathway. Given the porous nature of the material underlying the site, it appears that infiltration and migration of hazardous substances stored in the landfill is likely.

Sample results from a soil boring in the old disposal pit area (BR-SO-1) did not reveal significant levels of organic contamination (Figure 3). Samples collected from the low lying area east (downgradient) of the disposal pit area showed slight indications of organic contamination. Sample BR-SO-3 collected from the center of the depression area showed 73 µg/l acetone and 33 µg/l methylene chloride. Sample BR-SO-4, collected from the northern boundary of the depression area showed 42 µg/l acetone present in the soil matrix. These samples were collected at an approximate depth of five feet below ground surface. Inorganic analysis of subsurface soil samples revealed elevated levels of chromium (32.6 µg/kg) and silver (110.7 µg/kg) in downgradient soil boring BR-SO-2. Elevated levels of inorganics may be attributable to the deposition of laboratory materials in the landfill.

Contamination of subsurface soils downgradient of the site disposal pit indicate a possible release and migration of materials from the pit area.

6.2 AIR MIGRATION PATHWAY

The landfill area was covered by an approximate five foot thick cap. This cap appeared to be an effective barrier to contaminant migration via the air pathway. There was no evidence of blowing garbage and the containment appeared to be adequate. The waste pit was filled and covered. OVA and HNu readings throughout the site did not indicate a release of volatile contaminants from burial areas on the landfill.

6.3 GROUND WATER MIGRATION PATHWAY

Containment for the landfill was evaluated during the onsite reconnaissance inspection and subsequent interviews with Charles Mann. The sources identified for this pathway include the waste disposal pit and refuse burial areas. In both cases, these areas were not lined to prevent percolation and migration of contaminants into and through aquifers underlying the site. No run-on/run-off management control system was evident. No leachate collection system exists below the fill area (Ecology and Environment, Inc. 1990).

The depth to ground water in this area is approximately 20 feet. The nearest private drinking water wells are located south of the landfill and include the Jim Murphy residence. These wells are situated crossgradient from the landfill. The nearest downgradient wells are located across Meridian Road and Highway 93 and include the Precut Homes supply well (drinking from this well has been suspended after initial sampling revealed the presence of organic contaminants) and several additional domestic wells.

Sampling of downgradient wells indicates a probable release of site contaminants into ground water aquifers underlying and downgradient of the Bitterroot Valley Sanitary Landfill. Samples collected from onsite

well BR-GW-2 and downgradient monitoring well BR-GW-8 showed chloroform contamination of 640 µg/l and 260 µg/l, respectively. Chloroform was not detected in the background well (BR-GW-1), nor was acetone. Samples collected from the Precut Homes well (D-4) showed chloroform levels of 89 µg/l and acetone levels of 180 µg/l. Analysis of nested wells BR-GW-9 and BR-GW-10 showed significant chloroform contamination (110 µg/l) in the deep aquifer, while analyses of the shallow aquifer well (monitoring well BR-GW-9) did not reveal evidence of organic contaminants.

According to past reports submitted by Chen-Northern, there appears to be two aquifers separated by a low permeability zone (aquitard). Based on well logs recorded during the installation of monitoring wells BR-GW-9 and BR-GW-10, the aquitard is composed of a relatively tight sequence of gravel, sand and fine sand (Chen-Northern 1989). Under static water conditions, the low permeability of the aquitard causes the water level in the lower aquifer to rise above the top of the aquifer. However, water levels in the upper aquifer are above those in the lower aquifer creating a downward flow potential between the two ground water systems (Chen-Northern 1989).

This potential for a downward flow gradient may account for the elevated contaminant levels in the deep aquifer well (BR-GW-9) when compared to lesser contaminant levels detected in the shallow well (BR-GW-10). In general, there appears to be a significant hydraulic connection between the upper and lower aquifers.

Analysis of wells up to one and one-half miles downgradient of the landfill site have revealed the presence of organic contaminants. Analyses of domestic well D-43 (Philson well) showed slight evidence of ground water contamination (12 µg/l chloroform and 3 µg/l methylene chloride).

Inorganic analysis of ground water samples revealed elevated levels of manganese (353 µg/l in BR-GW-2, 102 µg/l in BR-GW-3 and 183 µg/l in BR-GW-8) and zinc (527 µg/l in D-4, 186 µg/l in D-40, 447 µg/l in D-42

and 713 $\mu\text{g/l}$ in BR-GW-19A). At this time, the FIT can not attribute these elevated concentrations to past landfill activities. These levels may be attributable to contribution from individual well construction and piping.

In general, ground water contamination appears to be present in both the shallow and deep aquifers, but limited to the area east of the site. At present there is no evidence of ground water contamination in domestic wells located to the north or south of the landfill site.

6.4 SURFACE WATER MIGRATION PATHWAY

The containment factors for surface water migration from water sources at the Bitterroot Valley Sanitary Landfill were evaluated. All refuse disposal areas and the onsite disposal pit had an overlying cap of approximately five feet in depth. There are no engineered run-on/run-off controls employed at the landfill. Soils onsite, including the landfill cover, appear to be fairly porous and tend to allow the infiltration and percolation of water into the ground underlying the site. The high infiltration rate associated with onsite material does not appear to promote surface runoff from the site. However, in the event of a major precipitation event and a high level of antecedent moisture in onsite soils, surface runoff may be generated. In this event, runoff from the site would travel eastward offsite toward the Bear Creek and Bitterroot River drainages. However, due to the diffuse nature of runoff patterns from the site, the FIT was not able to identify the PPE of site contaminants into either Bear Creek or the Bitterroot River.

Analysis of surface water and sediment in both the Bear Creek and Bitterroot River drainages showed sediment contamination downgradient of the landfill area. Bear Creek sediment sample BR-SE-3 showed concentrations of methylene chloride of 140 $\mu\text{g/kg}$ while upgradient samples BR-SE-1 and BR-SE-2 showed relatively small methylene chloride concentration (3 and 2 $\mu\text{g/kg}$, respectively). Sample BR-SE-7 collected on the Bitterroot River upgradient of the confluence with Bear Creek

showed acetone at 8 $\mu\text{g/kg}$ and methylene chloride at (2 $\mu\text{g/kg}$). Methylene chloride levels in Bitterroot River downgradient sample BR-SE-6 were consistent at 2 $\mu\text{g/kg}$. Analysis of downgradient sample BR-SE-5 did not reveal significant levels of organic or inorganic contamination.

The presence of methylene chloride in Bear Creek downgradient sediment sample BR-SE-3 (140 $\mu\text{g/kg}$) is significant and may be due to the contribution of shallow ground water to stream flow. Surface water sample BR-SW-2 had an elevated concentration of acetone (11 $\mu\text{g/l}$) indicating surface water contamination in Bear Creek. There is a potential for contaminant migration from ground water to surface water, although there is no data available which indicates shallow aquifer contamination near sample location BR-SE-3. The small levels of methylene chloride and acetone detected in the remaining surface water/sediment locations may be attributable to laboratory contamination of samples during analyses.

The presence of methylene chloride in both ground water and sediment samples may be the result of breakdown and biodegradation of chloroform in the environment. The process of reductive dechlorination of the chloroform molecule yields methylene chloride and various unidentified products (Montgomery et. al. 1990).

Given the characteristics of onsite soils and the surrounding site topography, the transport of contaminated materials via overland flow into either the Bear Creek or Bitterroot River drainages does not appear likely.

Surface water usage of the Bitterroot River appears to be mainly irrigation and instream usage (i.e., fishery production). Releases from the landfill site may adversely impact water quality and could potentially damage the Bitterroot River fishery.

6.5 SOIL EXPOSURE PATHWAY

The BVSL site is enclosed by a wire fence. This barrier appears to be continuous. In addition, there is a landfill guard who conducts inventories of materials carried into the landfill for disposal. There are several gates which control access in and out of the landfill area. During the FIT LSI, these gates were left open after regular operating hours, thus leaving the landfill open for both foot and vehicle travel. However, the FIT did not notice any evidence of unauthorized entry.

Surface soil contamination did not appear to be a likely problem at the landfill. All waste sources were overlain with a five-foot thick surface cover material to preclude wind transport of contaminants offsite.

7.0 CONCLUSIONS

After a detailed review and interpretation of analytical data generated during the August 21 through 25, 1990 Listing Site Inspection at the Bitterroot Valley Sanitary Landfill, the FIT has determined that the landfill is releasing contaminants to ground water immediately downgradient of the facility. This contamination appears to be affecting both the shallow and deep aquifers to the east of the facility and may have future adverse effects on private drinking water wells in the area. Trace chloroform contamination was detected in domestic well sample D-43 (Philson well) located approximately one-half mile to the east and downgradient of the landfill site. Contamination detected in several downgradient wells indicates the presence of a laterally extensive plume of site contaminants in area ground water.

At present there are no enforceable maximum contaminant level (MCL) standards for chloroform, acetone or methylene chloride; however, there are indirect and proposed MCLs for chloroform and methylene chloride.

The indirect MCL for chloroform is established through current standards set for the various trihalomethanes and is approximately 100

ppb for combined trihalomethanes in drinking supplies. Currently the proposed MCL for methylene chloride is 5 ppb, while there is no MCL established for acetone (Hesla 1991). Comparisons of MCLs to observed concentrations of chloroform, acetone and methylene chloride indicates the levels of these contaminants in ground water are nearing or currently exceed the indirect and proposed maximum contaminant levels for the aforementioned volatile contaminants.

Samples collected from onsite well BR-GW-2 show contaminant levels of 640 $\mu\text{g/l}$ for chloroform and 160 $\mu\text{g/l}$ for methylene chloride. Both concentrations greatly exceed indirect and proposed MCLs. Contaminant levels gradually decrease with lateral distance from the landfill site.

Samples collected from Bear Creek indicate a release of contaminants to surface water northeast of the site. Analysis of sample BR-SE-3 revealed significant methylene chloride contamination (140 $\mu\text{g/kg}$) in surface sediment in Bear Creek. The source of this contamination is unknown, but may be attributable to the contribution of contaminated ground water to stream flow via seeps and springs north and east of the site. Additional surface water and sediment samples collected from the Bear Creek and Bitterroot River drainages did not reveal significant levels of organic or inorganic contamination in surface water.

Soil borings collected from low lying areas downgradient of the former waste disposal pit onsite document the presence of acetone and methylene chloride in subsurface soils. The presence of these contaminants in subsurface soils is indicative of contaminant infiltration and migration from the former waste disposal area located to the west of the main landfill burial area (Figure 3).

According to the available site data, the Bitterroot Valley Sanitary Landfill appears to be releasing organic contaminants to both shallow and deep aquifers and to nearby Bear Creek. A significant number of ground water targets exist within four miles of the site and may be impacted.

8.0 REFERENCES

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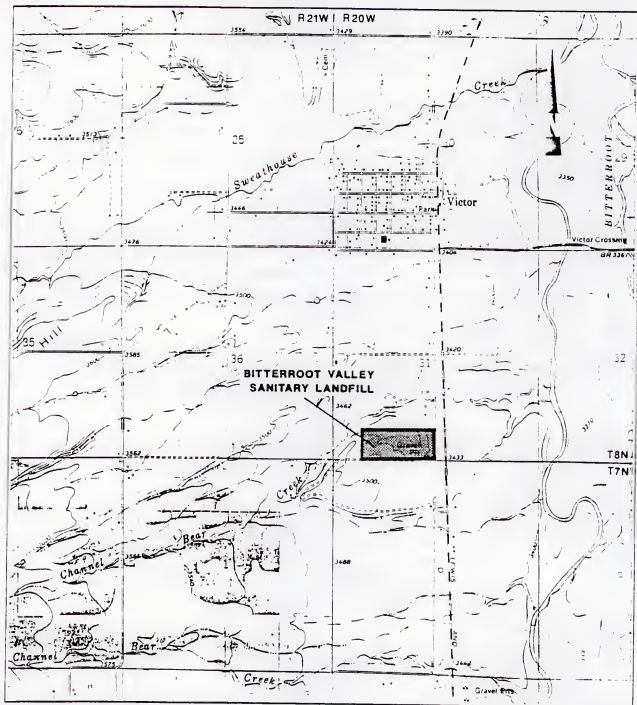
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Source: Victor, Montana Quadrangle, 1967

0 1/2 1 Mile

LOCATION MAP



LEGEND

■ Site Location

FIELD INVESTIGATIONS OF UNCONTROLLED HAZARDOUS WASTE SITES TASK REPORT TO THE E.P.A.

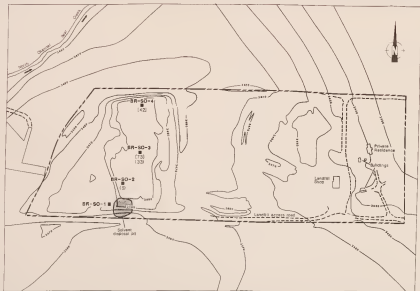
TITLE BITTERROOT VALLEY
SANITARY LANDFILL
Victor, Montana
SITE LOCATION MAP

T.D.D. F08-9005-08

ecology & environment, inc.
DENVER, COLORADO

FIG. 1

Date: 11/87 Drawn by: RSM Scale:



LEGEND

- Soil sample
- - - Approximate extent of Bitterroot Valley Sanitary Landfill
- ==== Dirt road
- [73] Aqueous concentrations ppm
- [133] Nitrylene Chloride concentrations ppm

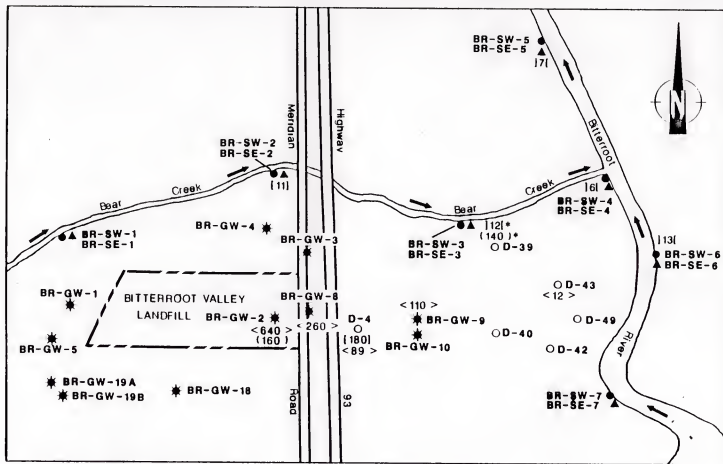
0 100 200 300 Feet

FIELD INVESTIGATIONS OF UNCONTROLLED
HAZARDOUS WASTE SITES
THIS REPORT IS: VOL 2 OF 4

TITLE
BITTERROOT VALLEY SANITARY LANDFILL
MOORE, MONTANA
SOIL SAMPLE LOCATION MAP
T O R FOR 8000-00

EDITION: 5-1 REVISIONS: 00
DENVER, COLORADO

DATE: 05/30/80 BY: JLE/THW



0 400 800 1200 1600 Feet

LEGEND

- * Monitoring well
- Domestic well
- Surface water sample
- ▲ Sediment sample
- Boundary of landfill
- < 640 > Chloroform ppb
- [180] Acetone ppb
- (160) Methylene Chloride ppb
- [12] Toluene ppb
- * Denotes sediment sample results

FIELD INVESTIGATIONS OF UNCONTROLLED HAZARDOUS WASTE SITES TASK REPORT TO THE EPA

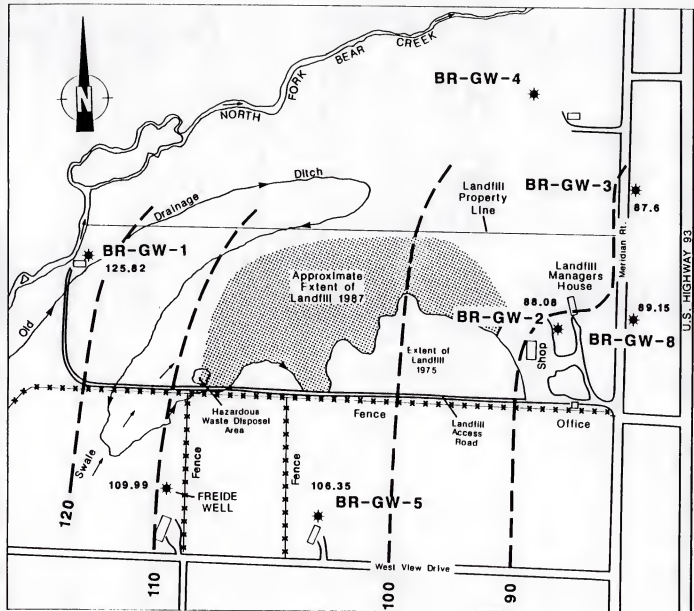
TITLE
BITTERROOT VALLEY SANITARY LANDFILL
Victor, Montana
GROUND AND SURFACE WATER
SAMPLE LOCATION/RESULTS MAP
F D D. F08-9005-08

ecology & environment, inc.
DENVER, COLORADO

FIG. 2

Date 06/90 Drawn by KJE Scale





LEGEND

- ★ Ground Water Level Locations
- Potentiometric Contour Line (Inferred)
- 89.15 Water Level Elevation (100 Feet Datum)

FIELD INVESTIGATIONS OF UNCONTROLLED HAZARDOUS WASTE SITES TASK REPORT TO THE E.P.A.

TITLE: BITTERROOT VALLEY
SANITARY LANDFILL
Victor, Montana

POTENTIOMETRIC CONTOUR MAP
OF THE ALLUVIUM AQUIFER
T.O.D. F08-9005-08

ecology & environment, inc.
DENVER, COLORADO

FIG. 4

Date: 11/87 Drawn by: RSM Scale: 1" = 300'

TABLE 1
NON-SAMPLING DATA COLLECTION
BITTERROOT VALLEY SANITARY LANDFILL
VICTOR, MONTANA
TDD #F08-9005-08 - PAN #FMT0052XAA

DATA ELEMENT	ACTUAL ELEMENTS/ONSITE MEASUREMENTS
* * * WASTE CHARACTERISTICS * * *	
Source 1: Waste Material	Manifests place actual waste quantity as deposited at approximately 1295 kilograms of various Target Compound List (TCL) compounds.
Source 2: Seep Areas	No seep areas were located onsite.
Source 3: Source Waste Areas	Municipal refuse burial area = 388,550 square feet. Deposition depth = approximately 15 feet. Approximate volume = 215,833 cubic yards.
* * * AIR PATHWAY * * *	
Containment	The soil covering the landfill appeared to be in good shape with no obvious signs of surficial erosion.
MEI	The nearest regularly occupied buildings consist of the Mann and Friedie residences located approximately .1 mile west and south of the landfill.
Population	There are regularly occupied domestic structures and one commercial building within a one-quarter mile radius of the site.
Land Use	Land use is mixed between rural domestic dwellings, commercial buildings, and pasture land.
* * * GROUND WATER PATHWAY * * *	
Containment	Buried refuse appears to be available to offsite migration via the ground water pathway.
Depth to Aquifer	The shallow aquifer water level is approximately 15 feet below ground surface. The deeper aquifer water level is approximately 50 feet.
Hydraulic Conductivity Sorptive Capacity	Soil borings and available well logs indicate a relatively high hydraulic conductivity and low sorptive capacity for materials underlying the landfill site.
Target Population	Interviews with local residents in Victor places the number of ground water users within a three mile radius of the site at approximately 1,200.

TABLE 1 CONT.
 NON-SAMPLING DATA COLLECTION
 BITTERROOT VALLEY SANITARY LANDFILL
 VICTOR, MONTANA
 TDD #F08-9005-08 - PAN #FMT0052XAA

DATA ELEMENT

ACTUAL ELEMENTS/ONSITE MEASUREMENTS

* * * SURFACE WATER PATHWAY * * *

Containment	Onsite materials appear to be adequately contained from offsite transport via surface water overland flow migration. There is potential however, for migration of contaminated ground water to recharge area surface water bodies.
Distance to Surface Water	There is no well defined surface run-off pattern and the FIT was unable to pinpoint an obvious probable point of entry (PPE) of site contaminants into either Bear Creek or the Bitterroot River.
Drainage Area	Total upgradient drainage areas encompass approximately 40 acres of landfill surface area. There are no man-made run-off controls present. There do not appear to be natural barriers to surface water flow toward Bear Creek and the Bitterroot River.
Distance to Sensitive Env.	There are small (< 1 acre) wetlands intermittently dispersed along both the Bear Creek and the Bitterroot River drainages. These wetlands are not continuous.

* * * SOIL EXPOSURE PATHWAY * * *

Accessibility/Frequency Of Use	Site access is controlled via the use of gates, fences and an entry attendant. Landfilled waste is not readily accessible and is covered by an approximate five foot soil cap.
Onsite/Nearby Targets	There is one onsite resident (landfill owner) and approximately five other employees. The population near the site includes a total of approximately nine domestic dwellings within .1 mile of the site.

TABLE 2
 1 IN 1
 TDD #F08-9005-08 - PAN #FMT0052XAA
 EPA ID #MTD980955702
 SOIL AND SEDIMENT FIELD DATA

SAMPLE ID	SAMPLING		SHIPPING DATE	COMMENTS
	DATE	TIME		
BR-SE-1	8/24/90	1220	8/25/90	Background on Bear Creek.
BR-SE-2	8/24/90	1145	8/25/90	Downgradient of landfill on Bear Creek.
BR-SE-3	8/24/90	1245	8/25/90	200 yards east of Highway 93 on Bear Creek.
BR-SE-4	8/24/90	1600	8/23/90	Confluence of Bear Creek and the Bitterroot River.
BR-SE-5	8/23/90	1506	8/23/90	Downgradient of the confluence of Bear Creek and the Bitterroot River.
BR-SE-6	8/24/90	1100	8/25/90	Upgradient of Bear Creek, Bitterroot River confluence.
BR-SE-7	8/24/90	1400	8/25/90	Background surface water sample on the Bitterroot River.
BR-S0-4	8/24/90	1041	8/25/90	Collected at \approx 5' depth interval in the depression area Elevated OVA readings during sample collection \approx 12 ppm.
BR-S0-2	8/24/90	1530	8/25/90	Collected \approx 30 yards southwest of collection point for BR-S0-4. OVA reading BKG.
BR-S0-3	8/24/90	1340	8/25/90	Collected \approx 20 yards south of BR-S0-4 collection point. OVA reading BKG.
BR-S0-1	8/25/90	1000	8/25/90	Collected from the old disposal pit area at \approx 10' depth interval.

SAMPLE I.D.	SAMPLING		SHIPPING DATE	FIELD DATA			COMMENTS
	DATE	TIME		pH	COND. µmho	TEMP. C°	
BR-SW-1	8/24/90	1220	8/25/90	7.1	16	13	Background on Bear Creek.
BR-SW-2	8/24/90	1145	8/25/90	7.1	20	13	Downgradient of landfill on Bear Creek.
BR-SW-3	8/24/90	1245	8/25/90	7.0	16	13	200 yards east of Highway 93 on Bear Creek.
BR-SW-4	8/24/90	1600	8/23/90	6.5	16	18	Confluence of Bear Creek and the Bitterroot River.
BR-SW-5	8/23/90	1506	8/23/90	7.8	18	50	Downgradient of the Confluence of Bear Creek and the Bitterroot River.
BR-SW-6	8/24/90	1100	8/25/90	6.9	15	80	Upgradient of the Bear Creek Bitterroot River Confluence.
BR-SW-7	8/24/90	1400	8/25/90	7.2	15	60	Background surface water sample on the Bitterroot River.

TABLE 4
1 IN 2
TDD #F08-9005-08 - PAN #FMT0052XAA
EPA ID #MTD980955702
GROUND WATER FIELD DATA

SAMPLE ID	TOTAL DEPTH	DEPTH TO WATER	GALLONS PURGED	SAMPLING	FIELD DATA	SHIPPING	COMMENTS
BR-GW-1	Unknown	Unknown	Purged 15 Min.	8/22/90	6.9 pH, 11.5°C, 100 umhos/cm	8/23/90	Mann's Domestic Well
BR-GW-2	Unknown	Unknown	Purged 15 Min.	8/22/90	6.9 pH, 11°C, 490 umhos/cm	8/23/90	Onsite Well
BR-GW-3	24'	15'	70.41	8/22/90	7.4 pH, 10°C, 19 umhos/cm	8/23/90	Downgradient Monitor- ing Well
BR-GW-4	72'	Unknown	Purged 15 Min.	8/23/90	6.9 pH, 11°C, 62 umhos/cm	8/27/90	Marjorie Wilson Well
BR-GW-5	≈ 100'	Unknown	Purged 15 Min.	8/23/90	6.6 pH, 14°C, 850 umhos/cm	8/27/90	Friedie Well
BR-GW-8	27.35'	14.35'	57.21	8/23/90	6.8 pH, 11°C, 660 umhos/cm	8/27/90	Southernmost DNGRDNT Monitoring Well
BR-GW-9	98.1'	47.8'	55.02	8/22/90	6.1 pH, 13°C, 39 umhos/cm	8/27/90	Deep Well East of Precut Homes
BR-GW-10	31.1'	15.9'	16.71	8/22/90	7.0 pH, 14°C, 40 umhos/cm	8/27/90	Shallow Aquifer East of Precut Homes
D-4	114'	20'	Purged 15 Min.	8/23/90	6.5 pH, 13°C, 1600 umhos/cm	8/23/90	Precut Homes Well (Triple Volume)
D-39	129'	Unknown	Purged 15 Min.	8/23/90	7.4 pH, 13°C, 100 umhos/cm	8/23/90	140 Pine Drive Kittel Well
D-40	68'	Unknown	Purged 15 Min.	8/23/90	7.8 pH, 11°C, 100 umhos/cm	8/23/90	Downgradient Domestic Well

TABLE CONT.
2 IN 2
TDD #F08-9005-08 - PAN #FMT0052XAA
EPA ID #MTD980955702
GROUND WATER FIELD DATA

SAMPLE ID	TOTAL DEPTH	DEPTH TO WATER	GALLONS PURGED	SAMPLING	FIELD DATA	SHIPPING	COMMENTS
D-42	65'	Unknown	Purged 15 Min.	8/23/90	7.8 pH, 11°C, 100 umhos/cm	8/23/90	Wilma Mixon Well
D-43	80'	Unknown	Purged 11 Min.	8/23/90	7.1 pH, Temp. not taken, 200 umhos/cm	8/23/90	Philson Well
D-49	Unknown	Unknown	Purged 15 Min.	8/23/90	7.23 pH, Temp. not taken, 100 umhos/cm	8/23/90	111 Pine Drive Hunt Well
BR-GW-18	Unknown	Unknown	Purged 15 Min.	8/21/90	6.70 pH, 11.5°C, 550 umhos/cm	8/23/90	Murphy Well
BR-GW-19A	≈ 150'	Unknown	Purged 15 Min.	8/21/90	6.5 pH, 11.5°C, 500 umhos/cm	8/23/90	Petersen's Unfiltered Well
BR-GW-19B	≈ 80'	Unknown	Purged 15 Min.	8/21/90	6.72 pH, 11.5°C, 600 umhos/cm	8/23/90	Petersen's Filtered Household Well
BR-GW-17	≈ 100'	Unknown	Purged	8/23/90	6.6 pH, 14°C, 850 umhos/cm	8/23/90	Duplicate of BR-GW-5 Friedic Well

APPENDIX A

SAMPLE COLLECTION AND SHIPMENT INFORMATION

GROUNDWATER SAMPLE
COLLECTION AND SHIPMENT
INFORMATION

TABLE 1 SITE BITTERROOT VALLEY SANITARY LANDFILL

SAMPLE ID	BNA	VOA	METALS	OTHER	HAZARD LEVEL E M H	ORGANIC			INORGANIC		
						TRAFFIC REPORT	TAGS	CHAIN OF CUSTODY	TRAFFIC REPORT	TAGS	CHAIN OF CUSTODY
BR-GW-1	✓	✓	✓		E	HK018	8-11751 8-11754 8-11762 8-11753	8-14215	MHT 504	8-11755	8-14222
BR-GW-2	✓	✓	✓		E	HK019	8-11754 8-11759 8-11757 8-11758	8-14215	MHT 503	8-11760	8-14222
BR-GW-3	✓	✓	✓		E	HK020	8-11761 8-11762 8-11764	8-14215	MHT 505	8-11765	8-14222
BR-GW-4	✓	✓	✓		E	HK026	8-11766 8-11767 8-11768 8-11769	8-14216	MHT 510	8-11770	8-14222
BR-GW-5	✓	✓	✓		E	HK022	8-11771 8-11774 8-11772 8-11773	8-14216	MHT 513	8-11775	8-14222
BR-GW-8	✓	✓	✓		E	HK023	8-11776 8-11777 8-11778 8-11779	8-14216	MHT 508	8-11780	8-14222
BR-GW-9	✓	✓	✓		E	HK024	8-11781 8-11782 8-11783 8-11784	8-14215	MHT 507	8-11785	8-14222
BR-GW-10	✓	✓	✓		E	HK025	8-11786 8-11787 8-11788 8-11789	8-14215	MHT 506	8-11790	8-14222
D-4	✓	✓	✓		E	HK021	8-11793 8-11794 8-11795 8-11796	8-14217	MHT 509	8-11802	8-14222
D-4	✓	✓	✓		E	HK021	8-11797 8-11798 8-11799 8-11800	8-14217	MHT 509	8-11805	8-14222
D-4	✓	✓	✓		E	HK021	8-11801 8-11802 8-11803 8-11804	8-14217	—	—	—
D-39	✓	✓	✓		E	HK028	8-11807 8-11808 8-11809 8-11810	8-14218	MHT 516	8-11812	8-14222
D-40	✓	✓	✓		E	HK029	8-11813 8-11814 8-11815 8-11816	8-14216	MHT 512	8-11817	8-14222
D-42	✓	✓	✓		E	HK031	8-11817 8-11818 8-11819 8-11820	8-14218	MHT 518	8-11827	8-14222
D-43	✓	✓	✓		E	HK032	8-11821 8-11822 8-11823 8-11824 8-11825	8-14218	MHT 517	8-11832	8-14222

GROUNDWATER SAMPLE
COLLECTION AND SHEPHERD
INFORMATION

TABLE 1 (Cont.) SITE BUTTERCROFT VALLEY SANITARY LANDFILL

SAMPLE ID	BNA	VOA	METALS	OTHER	HAZARD LEVEL E M H	ORGANIC			INORGANIC		
						TRAFFIC REPORT	TAGS	CHAIN OF CUSTODY	TRAFFIC REPORT	TAGS	CHAIN OF CUSTODY
D-49	✓	✓	✓		E	HK033	2-11833 2-11834 2-11835 2-11836	8-14216	MHT 515	8-11837	8-14222
BR-GW-11		✓			E	HK034	8-11838 8-11839	8-14215	—	—	—
BR-GW-12		✓			E	HK058	8-11841 8-11840	8-14219	—	—	—
BR-GW-14	✓	✓	✓		E	HK036	8-11842 8-11843 8-11844 8-11845 8-11846 8-11847 8-11848 8-11849 8-11850 8-11851 8-11852 8-11853 8-11854 8-11855 8-11856 8-11857 8-11858 8-11859 8-11860 8-11861 8-11862 8-11863 8-11864 8-11865 8-11866 8-11867 8-11868 8-11869 8-11870 8-11871 8-11872 8-11873 8-11874 8-11875 8-11876 8-11877 8-11878 8-11879 8-11880 8-11881 8-11882 8-11883 8-11884 8-11885 8-11886 8-11887 8-11888 8-11889 8-11890 8-11891 8-11892 8-11893 8-11894 8-11895 8-11896 8-11897 8-11898 8-11899	8-14217	MHT 511	8-11846	8-14221
BR-GW-17	✓	✓	✓		E	HK040	8-11861 8-11862 8-11863 8-11864 8-11865 8-11866 8-11867 8-11868 8-11869 8-11870 8-11871 8-11872 8-11873 8-11874 8-11875 8-11876 8-11877 8-11878 8-11879 8-11880 8-11881 8-11882 8-11883 8-11884 8-11885 8-11886 8-11887 8-11888 8-11889 8-11890 8-11891 8-11892 8-11893 8-11894 8-11895 8-11896 8-11897 8-11898 8-11899	8-14216	MHT 514	8-17065	8-14221
BR-GW-18	✓	✓	✓		E	HK037	8-17057 8-17058 8-17059 8-17060 8-17061 8-17062 8-17063 8-17064 8-17065 8-17066 8-17067 8-17068 8-17069 8-17070 8-17071 8-17072 8-17073 8-17074 8-17075 8-17076 8-17077 8-17078 8-17079 8-17080 8-17081 8-17082 8-17083 8-17084 8-17085 8-17086 8-17087 8-17088 8-17089 8-17090 8-17091 8-17092 8-17093 8-17094 8-17095 8-17096 8-17097 8-17098 8-17099	8-14215	MHT 198	8-17061	8-14221
BR-GW-19A	✓	✓	✓		E	HK038	8-11703 8-11704 8-11705 8-11706 8-11707 8-11708 8-11709 8-11710 8-11711 8-11712 8-11713 8-11714 8-11715 8-11716 8-11717 8-11718 8-11719 8-11720 8-11721 8-11722 8-11723 8-11724 8-11725 8-11726 8-11727 8-11728 8-11729 8-11730 8-11731 8-11732 8-11733 8-11734 8-11735 8-11736 8-11737 8-11738 8-11739 8-11740 8-11741 8-11742 8-11743 8-11744 8-11745 8-11746 8-11747 8-11748 8-11749 8-11750 8-11751 8-11752 8-11753 8-11754 8-11755 8-11756 8-11757 8-11758 8-11759 8-11760 8-11761 8-11762 8-11763 8-11764 8-11765 8-11766 8-11767 8-11768 8-11769 8-11770 8-11771 8-11772 8-11773 8-11774 8-11775 8-11776 8-11777 8-11778 8-11779 8-11780 8-11781 8-11782 8-11783 8-11784 8-11785 8-11786 8-11787 8-11788 8-11789 8-11790 8-11791 8-11792 8-11793 8-11794 8-11795 8-11796 8-11797 8-11798 8-11799	8-14215	MHT 501	8-11701	8-14222
BR-GW-19B	✓	✓	✓		E	HK039	8-11707 8-11708 8-11709 8-11710 8-11711 8-11712 8-11713 8-11714 8-11715 8-11716 8-11717 8-11718 8-11719 8-11720 8-11721 8-11722 8-11723 8-11724 8-11725 8-11726 8-11727 8-11728 8-11729 8-11730 8-11731 8-11732 8-11733 8-11734 8-11735 8-11736 8-11737 8-11738 8-11739 8-11740 8-11741 8-11742 8-11743 8-11744 8-11745 8-11746 8-11747 8-11748 8-11749 8-11750 8-11751 8-11752 8-11753 8-11754 8-11755 8-11756 8-11757 8-11758 8-11759 8-11760 8-11761 8-11762 8-11763 8-11764 8-11765 8-11766 8-11767 8-11768 8-11769 8-11770 8-11771 8-11772 8-11773 8-11774 8-11775 8-11776 8-11777 8-11778 8-11779 8-11780 8-11781 8-11782 8-11783 8-11784 8-11785 8-11786 8-11787 8-11788 8-11789 8-11790 8-11791 8-11792 8-11793 8-11794 8-11795 8-11796 8-11797 8-11798 8-11799	8-14215	MHT 502	8-11706	8-14221

COLLECTION AND SHIPMENT INFORMATION

TABLE 3 SITE BITTERROOT VALLEY SANITARY LANDFILL

TABLE 1		SITE <u>BETTERBOTT VALLEY SANDTRAY LANDFILL</u>				ORGANIC			INORGANIC / DEVEN		
SAMPLE ID	BWA	VOA	METALS	OTHER	HAZARD LEVEL E M H	TRAFFIC REPORT	TAGS	CHAIN OF CUSTODY	TRAFFIC REPORT	TAGS	CHAIN OF CUSTODY
<u>BR-50-1</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>DIOXIN</u>	<u>E</u>	<u>HK027</u>	<u>8-11723</u> <u>8-11724</u> <u>8-11725</u> <u>8-11726</u> <u>8-11727</u> <u>8-11728</u> <u>8-11729</u> <u>8-11730</u> <u>8-11731</u> <u>8-11732</u> <u>8-11733</u> <u>8-11734</u> <u>8-11735</u> <u>8-11736</u> <u>8-11737</u> <u>8-11738</u> <u>8-11739</u> <u>8-11740</u> <u>8-11741</u> <u>8-11742</u> <u>8-11743</u> <u>8-11744</u> <u>8-11745</u> <u>8-11746</u> <u>8-11747</u> <u>8-11748</u> <u>8-11749</u> <u>8-11750</u> <u>8-11751</u> <u>8-11752</u> <u>8-11753</u> <u>8-11754</u> <u>8-11755</u> <u>8-11756</u> <u>8-11757</u> <u>8-11758</u> <u>8-11759</u> <u>8-11760</u> <u>8-11761</u> <u>8-11762</u> <u>8-11763</u> <u>8-11764</u> <u>8-11765</u> <u>8-11766</u> <u>8-11767</u> <u>8-11768</u> <u>8-11769</u> <u>8-11770</u> <u>8-11771</u> <u>8-11772</u> <u>8-11773</u> <u>8-11774</u> <u>8-11775</u> <u>8-11776</u> <u>8-11777</u> <u>8-11778</u> <u>8-11779</u> <u>8-11780</u> <u>8-11781</u> <u>8-11782</u> <u>8-11783</u> <u>8-11784</u> <u>8-11785</u> <u>8-11786</u> <u>8-11787</u> <u>8-11788</u> <u>8-11789</u> <u>8-11790</u> <u>8-11791</u> <u>8-11792</u> <u>8-11793</u> <u>8-11794</u> <u>8-11795</u> <u>8-11796</u> <u>8-11797</u> <u>8-11798</u> <u>8-11799</u> <u>8-11800</u> <u>8-11801</u> <u>8-11802</u> <u>8-11803</u> <u>8-11804</u> <u>8-11805</u> <u>8-11806</u> <u>8-11807</u> <u>8-11808</u> <u>8-11809</u> <u>8-11810</u> <u>8-11811</u> <u>8-11812</u> <u>8-11813</u> <u>8-11814</u> <u>8-11815</u> <u>8-11816</u> <u>8-11817</u> <u>8-11818</u> <u>8-11819</u> <u>8-11820</u> <u>8-11821</u> <u>8-11822</u> <u>8-11823</u> <u>8-11824</u> <u>8-11825</u> <u>8-11826</u> <u>8-11827</u> <u>8-11828</u> <u>8-11829</u> <u>8-11830</u> <u>8-11831</u> <u>8-11832</u> <u>8-11833</u> <u>8-11834</u> <u>8-11835</u> <u>8-11836</u> <u>8-11837</u> <u>8-11838</u> <u>8-11839</u> <u>8-11840</u> <u>8-11841</u> <u>8-11842</u> <u>8-11843</u> <u>8-11844</u> <u>8-11845</u> <u>8-11846</u> <u>8-11847</u> <u>8-11848</u> <u>8-11849</u> <u>8-11850</u> <u>8-11851</u> <u>8-11852</u> <u>8-11853</u> <u>8-11854</u> <u>8-11855</u> <u>8-11856</u> <u>8-11857</u> <u>8-11858</u> <u>8-11859</u> <u>8-11860</u> <u>8-11861</u> <u>8-11862</u> <u>8-11863</u> <u>8-11864</u> <u>8-11865</u> <u>8-11866</u> <u>8-11867</u> <u>8-11868</u> <u>8-11869</u> <u>8-11870</u> <u>8-11871</u> <u>8-11872</u> <u>8-11873</u> <u>8-11874</u> <u>8-11875</u> <u>8-11876</u> <u>8-11877</u> <u>8-11878</u> <u>8-11879</u> <u>8-11880</u> <u>8-11881</u> <u>8-11882</u> <u>8-11883</u> <u>8-11884</u> <u>8-11885</u> <u>8-11886</u> <u>8-11887</u> <u>8-11888</u> <u>8-11889</u> <u>8-11890</u> <u>8-11891</u> <u>8-11892</u> <u>8-11893</u> <u>8-11894</u> <u>8-11895</u> <u>8-11896</u> <u>8-11897</u> <u>8-11898</u> <u>8-11899</u> <u>8-11900</u> <u>8-11901</u> <u>8-11902</u> <u>8-11903</u> <u>8-11904</u> <u>8-11905</u> <u>8-11906</u> <u>8-11907</u> <u>8-11908</u> <u>8-11909</u> <u>8-11910</u> <u>8-11911</u> <u>8-11912</u> <u>8-11913</u> <u>8-11914</u> <u>8-11915</u> <u>8-11916</u> <u>8-11917</u> <u>8-11918</u> <u>8-11919</u> <u>8-11920</u> <u>8-11921</u> <u>8-11922</u> <u>8-11923</u> <u>8-11924</u> <u>8-11925</u> <u>8-11926</u> <u>8-11927</u> <u>8-11928</u> <u>8-11929</u> <u>8-11930</u> <u>8-11931</u> <u>8-11932</u> <u>8-11933</u> <u>8-11934</u> <u>8-11935</u> <u>8-11936</u> <u>8-11937</u> <u>8-11938</u> <u>8-11939</u> <u>8-11940</u> <u>8-11941</u> <u>8-11942</u> <u>8-11943</u> <u>8-11944</u> <u>8-11945</u> <u>8-11946</u> <u>8-11947</u> <u>8-11948</u> <u>8-11949</u> <u>8-11950</u> <u>8-11951</u> <u>8-11952</u> <u>8-11953</u> <u>8-11954</u> <u>8-11955</u> <u>8-11956</u> <u>8-11957</u> <u>8-11958</u> <u>8-11959</u> <u>8-11960</u> <u>8-11961</u> <u>8-11962</u> <u>8-11963</u> <u>8-11964</u> <u>8-11965</u> <u>8-11966</u> <u>8-11967</u> <u>8-11968</u> <u>8-11969</u> <u>8-11970</u> <u>8-11971</u> <u>8-11972</u> <u>8-11973</u> <u>8-11974</u> <u>8-11975</u> <u>8-11976</u> <u>8-11977</u> <u>8-11978</u> <u>8-11979</u> <u>8-11980</u> <u>8-11981</u> <u>8-11982</u> <u>8-11983</u> <u>8-11984</u> <u>8-11985</u> <u>8-11986</u> <u>8-11987</u> <u>8-11988</u> <u>8-11989</u> <u>8-11990</u> <u>8-11991</u> <u>8-11992</u> <u>8-11993</u> <u>8-11994</u> <u>8-11995</u> <u>8-11996</u> <u>8-11997</u> <u>8-11998</u> <u>8-11999</u> <u>8-12000</u> <u>8-12001</u> <u>8-12002</u> <u>8-12003</u> <u>8-12004</u> <u>8-12005</u> <u>8-12006</u> <u>8-12007</u> <u>8-12008</u> <u>8-12009</u> <u>8-12010</u> <u>8-12011</u> <u>8-12012</u> <u>8-12013</u> <u>8-12014</u> <u>8-12015</u> <u>8-12016</u> <u>8-12017</u> <u>8-12018</u> <u>8-12019</u> <u>8-12020</u> <u>8-12021</u> <u>8-12022</u> <u>8-12023</u> <u>8-12024</u> <u>8-12025</u> <u>8-12026</u> <u>8-12027</u> <u>8-12028</u> <u>8-12029</u> <u>8-12030</u> <u>8-12031</u> <u>8-12032</u> <u>8-12033</u> <u>8-12034</u> <u>8-12035</u> <u>8-12036</u> <u>8-12037</u> <u>8-12038</u> <u>8-12039</u> <u>8-12040</u> <u>8-12041</u> <u>8-12042</u> <u>8-12043</u> <u>8-12044</u> <u>8-12045</u> <u>8-12046</u> <u>8-12047</u> <u>8-12048</u> <u>8-12049</u> <u>8-12050</u> <u>8-12051</u> <u>8-12052</u> <u>8-12053</u> <u>8-12054</u> <u>8-12055</u> <u>8-12056</u> <u>8-12057</u> <u>8-12058</u> <u>8-12059</u> <u>8-12060</u> <u>8-12061</u> <u>8-12062</u> <u>8-12063</u> <u>8-12064</u> <u>8-12065</u> <u>8-12066</u> <u>8-12067</u> <u>8-12068</u> <u>8-12069</u> <u>8-12070</u> <u>8-12071</u> <u>8-12072</u> <u>8-12073</u> <u>8-12074</u> <u>8-12075</u> <u>8-12076</u> <u>8-12077</u> <u>8-12078</u> <u>8-12079</u> <u>8-12080</u> <u>8-12081</u> <u>8-12082</u> <u>8-12083</u> <u>8-12084</u> <u>8-12085</u> <u>8-12086</u> <u>8-12087</u> <u>8-12088</u> <u>8-12089</u> <u>8-12090</u> <u>8-12091</u> <u>8-12092</u> <u>8-12093</u> <u>8-12094</u> <u>8-12095</u> <u>8-12096</u> <u>8-12097</u> <u>8-12098</u> <u>8-12099</u> <u>8-12100</u> <u>8-12101</u> <u>8-12102</u> <u>8-12103</u> <u>8-12104</u> <u>8-12105</u> <u>8-12106</u> <u>8-12107</u> <u>8-12108</u> <u>8-12109</u> <u>8-12110</u> <u>8-12111</u> <u>8-12112</u> <u>8-12113</u> <u>8-12114</u> <u>8-12115</u> <u>8-12116</u> <u>8-12117</u> <u>8-12118</u> <u>8-12119</u> <u>8-12120</u> <u>8-12121</u> <u>8-12122</u> <u>8-12123</u> <u>8-12124</u> <u>8-12125</u> <u>8-12126</u> <u>8-12127</u> <u>8-12128</u> <u>8-12129</u> <u>8-12130</u> <u>8-12131</u> <u>8-12132</u> <u>8-12133</u> <u>8-12134</u> <u>8-12135</u> <u>8-12136</u> <u>8-12137</u> <u>8-12138</u> <u>8-12139</u> <u>8-12140</u> <u>8-12141</u> <u>8-12142</u> <u>8-12143</u> <u>8-12144</u> <u>8-12145</u> <u>8-12146</u> <u>8-12147</u> <u>8-12148</u> <u>8-12149</u> <u>8-12150</u> <u>8-12151</u> <u>8-12152</u> <u>8-12153</u> <u>8-12154</u> <u>8-12155</u> <u>8-12156</u> <u>8-12157</u> <u>8-12158</u> <u>8-12159</u> <u>8-12160</u> <u>8-12161</u> <u>8-12162</u> <u>8-12163</u> <u>8-12164</u> <u>8-12165</u> <u>8-12166</u> <u>8-12167</u> <u>8-12168</u> <u>8-12169</u> <u>8-12170</u> <u>8-12171</u> <u>8-12172</u> <u>8-12173</u> <u>8-12174</u> <u>8-12175</u> <u>8-12176</u> <u>8-12177</u> <u>8-12178</u> <u>8-12179</u> <u>8-12180</u> <u>8-12181</u> <u>8-12182</u> <u>8-12183</u> <u>8-12184</u> <u>8-12185</u> <u>8-12186</u> <u>8-12187</u> <u>8-12188</u> <u>8-12189</u> <u>8-12190</u> <u>8-12191</u> <u>8-12192</u> <u>8-12193</u> <u>8-12194</u> <u>8-12195</u> <u>8-12196</u> <u>8-12197</u> <u>8-12198</u> <u>8-12199</u> <u>8-12200</u> <u>8-12201</u> <u>8-12202</u> <u>8-12203</u> <u>8-12204</u> <u>8-12205</u> <u>8-12206</u> <u>8-12207</u> <u>8-12208</u> <u>8-12209</u> <u>8-12210</u> <u>8-12211</u> <u>8-12212</u> <u>8-12213</u> <u>8-12214</u> <u>8-12215</u> <u>8-12216</u> <u>8-12217</u> <u>8-12218</u> <u>8-12219</u> <u>8-12220</u> <u>8-12221</u> <u>8-12222</u> <u>8-12223</u> <u>8-12224</u> <u>8-12225</u> <u>8-12226</u> <u>8-12227</u> <u>8-12228</u> <u>8-12229</u> <u>8-12230</u> <u>8-12231</u> <u>8-12232</u> <u>8-12233</u> <u>8-12234</u> <u>8-12235</u> <u>8-12236</u> <u>8-12237</u> <u>8-12238</u> <u>8-12239</u> <u>8-12240</u> <u>8-12241</u> <u>8-12242</u> <u>8-12243</u> <u>8-12244</u> <u>8-12245</u> <u>8-12246</u> <u>8-12247</u> <u>8-12248</u> <u>8-12249</u> <u>8-12250</u> <u>8-12251</u> <u>8-12252</u> <u>8-12253</u> <u>8-12254</u> <u>8-12255</u> <u>8-12256</u> <u>8-12257</u> <u>8-12258</u> <u>8-12259</u> <u>8-12260</u> <u>8-12261</u> <u>8-12262</u> <u>8-12263</u> <u>8-12264</u> <u>8-12265</u> <u>8-12266</u> <u>8-12267</u> <u>8-12268</u> <u>8-12269</u> <u>8-12270</u> <u>8-12271</u> <u>8-12272</u> <u>8-12273</u> <u>8-12274</u> <u>8-12275</u> <u>8-12276</u> <u>8-12277</u> <u>8-12278</u> <u>8-12279</u> <u>8-12280</u> <u>8-12281</u> <u>8-12282</u> <u>8-12283</u> <u>8-12284</u> <u>8-12285</u> <u>8-12286</u> <u>8-12287</u> <u>8-12288</u> <u>8-12289</u> <u>8-12290</u> <u>8-12291</u> <u>8-12292</u> <u>8-12293</u> <u>8-12294</u> <u>8-12295</u> <u>8-12296</u> <u>8-12297</u> <u>8-12298</u> <u>8-12299</u> <u>8-12300</u> <u>8-12301</u> <u>8-12302</u> <u>8-12303</u> <u>8-12304</u> <u>8-12305</u> <u>8-12306</u> <u>8-12307</u> <u>8-12308</u> <u>8-12309</u> <u>8-12310</u> <u>8-12311</u> <u>8-12312</u> <u>8-12313</u> <u>8-12314</u> <u>8-12315</u> <u>8-12316</u> <u>8-12317</u> <u>8-12318</u> <u>8-12319</u> <u>8-12320</u> <u>8-12321</u> <u>8-12322</u> <u>8-12323</u> <u>8-12324</u> <u>8-12325</u> <u>8-12326</u> <u>8-12327</u> <u>8-12328</u> <u>8-12329</u> <u>8-12330</u> <u>8-12331</u> <u>8-12332</u> <u>8-12333</u> <u>8-12334</u> <u>8-12335</u> <u>8-12336</u> <u>8-12337</u> <u>8-12338</u> <u>8-12339</u> <u>8-12340</u> <u>8-12341</u> <u>8-12342</u> <u>8-12343</u> <u>8-12344</u> <u>8-12345</u> <u>8-12346</u> <u>8-12347</u> <u>8-12348</u> <u>8-12349</u> <u>8-12350</u> <u>8-12351</u> <u>8-12352</u> <u>8-12353</u> <u>8-12354</u> <u>8-12355</u> <u>8-12356</u> <u>8-12357</u> <u>8-12358</u> <u>8-12359</u> <u>8-12360</u> <u>8-12361</u> <u>8-12362</u> <u>8-12363</u> <u>8-12364</u> <u>8-12365</u> <u>8-12366</u> <u>8-12367</u> <u>8-12368</u> <u>8-12369</u> <u>8-12370</u> <u>8-12371</u> <u>8-12372</u> <u>8-12373</u> <u>8-12374</u> <u>8-12375</u> <u>8-12376</u> <u>8-12377</u> <u>8-12378</u> <u>8-12379</u> <u>8-12380</u> <u>8-12381</u> <u>8-12382</u> <u>8-12383</u> <u>8-12384</u> <u>8-12385</u> <u>8-12386</u> <u>8-12387</u> <u>8-12388</u> <u>8-12389</u> <u>8-12390</u> <u>8-12391</u> <u>8-12392</u> <u>8-12393</u> <u>8-12394</u> <u>8-12395</u> <u>8-12396</u> <u>8-12397</u> <u>8-12398</u> <u>8-12399</u> <u>8-12400</u> <u>8-12401</u> <u>8-12402</u> <u>8-12403</u> <u>8-12404</u> <u>8-12405</u> <u>8-12406</u> <u>8-12407</u> <u>8-12408</u> <u>8-12409</u> <u>8-12410</u> <u>8-12411</u> <u>8-12412</u> <u>8-12413</u> <u>8-12414</u> <u>8-12415</u> <u>8-12416</u> <u>8-12417</u> <u>8-12418</u> <u>8-12419</u> <u>8-12420</u> <u>8-12421</u> <u>8-12422</u> <u>8-12423</u> <u>8-12424</u> <u>8-12425</u> <u>8-12426</u> <u>8-12427</u> <u>8-12428</u> <u>8-12429</u> <u>8-12430</u> <u>8-12431</u> <u>8-12432</u> <u>8-12433</u> <u>8-12434</u> <u>8-12435</u> <u>8-12436</u> <u>8-12437</u> <u>8-12438</u> <u>8-12439</u> <u>8-12440</u> <u>8-12441</u> <u>8-12442</u> <u>8-12443</u> <u>8-12444</u> <u>8-12445</u> <u>8-12446</u> <u>8-12447</u> <u>8-12448</u> <u>8-12449</u> <u>8-12450</u> <u>8-12451</u> <u>8-12452</u> <u>8-12453</u> <u>8-12454</u> <u>8-12455</u> <u>8-12456</u> <u>8-12457</u> <u>8-12458</u> <u>8-12459</u> <u>8-12460</u> <u>8-12461</u> <u>8-12462</u> <u>8-12463</u> <u>8-12464</u> <u>8-12465</u> <u>8-12466</u> <u>8-12467</u> <u>8-12468</u> <u>8-12469</u> <u>8-12470</u> <u>8-12471</u> <u>8-12472</u> <u>8-12473</u> <u>8-12474</u> <u>8-12475</u> <u>8-12476</u> <u>8-12477</u> <u>8-12478</u> <u>8-12479</u> <u>8-12480</u> <u>8-12481</u> <u>8-12482</u> <u>8-12483</u> <u>8-12484</u> <u>8-12485</u> <u>8-12486</u> <u>8-12487</u> <u>8-12488</u> <u>8-12489</u> <u>8-12490</u> <u>8-12491</u> <u>8-12492</u> <u>8-12493</u> <u>8-12494</u> <u>8-12495</u> <u>8-12496</u> <u>8-12497</u> <u>8-12498</u> <u>8-12499</u> <u>8-12500</u> <u>8-12501</u> <u>8-12502</u> <u>8-12503</u> <u>8-12504</u> <u>8-12505</u> <u>8-12506</u> <u>8-12507</u> <u>8-12508</u> <u>8-12509</u> <u>8-12510</u> <u>8-12511</u> <u>8-12512</u> <u>8-12513</u> <u>8-12514</u> <u>8-12515</u> <u>8-12516</u> <u>8-12517</u> <u>8-12518</u> <u>8-12519</u> <u>8-12520</u> <u>8-12521</u> <u>8-12522</u> <u>8-12523</u> <u>8-12524</u> <u>8-12525</u> <u>8-12526</u> <u>8-12527</u> <u>8-12528</u> <u>8-12529</u> <u>8-12530</u> <u>8-12531</u> <u>8-12532</u> <u>8-12533</u> <u>8-12534</u> <u>8-12535</u> <u>8-12536</u> <u>8-12537</u> <u>8-12538</u> <u>8-12539</u> <u>8-12540</u> <u>8-12541</u> <u>8-12542</u> <u>8-12543</u> <u>8-12544</u> <u>8-12545</u> <u>8-12546</u> <u>8-12547</u> <u>8-12548</u> <u>8-12549</u> <u>8-12550</u> <u>8-12551</u> <u>8-12552</u> <u>8-12553</u> <u>8-12554</u> <u>8-12555</u> <u>8-12556</u> <u>8-12557</u> <u>8-12558</u> <u>8-12559</u> <u>8-12560</u> <u>8-12561</u> <u>8-12562</u> <u>8-12563</u> <u>8-12564</u> <u>8-12565</u> <u>8-12566</u> <u>8-12567</u> <u>8-12568</u> <u>8-12569</u> <u>8-12570</u> <u>8-12571</u> <u>8-12572</u> <u>8-12573</u> <u>8-12574</u> <u>8-12575</u> <u>8-12576</u> <u>8-12577</u> <u>8-12578</u> <u>8-12579</u> <u>8-12580</u> <u>8-12581</u> <u>8-12582</u> <u>8-12583</u> <u>8-12584</u> <u>8-12585</u> <u>8-12586</u> <u>8-12587</u> <u>8-12588</u>				

APPENDIX B

ANALYTICAL RESULTS TABLES FOR ORGANIC AND INORGANIC ANALYSES

TABLE 1
ORGANIC ANALYTICAL RESULTS FOR
SUBSURFACE SOIL SAMPLES
BITTERROOT VALLEY SANITARY LANDFILL
VICTOR, MONTANA
TDD F08-9005-08 - PAN FMT0052XAA
CASE #14772

SAMPLE # TRAFFIC RPT # LOCATION	CONCENTRATION IN ug/kg			
	BR-SO-1	BR-SO-2	BR-SO-3	BR-SO-4
	HK027	HK057	HK056	HK055
	Waste Character- ization Sample	Waste Character- ization Sample	Waste Character- ization Sample	Waste Character- ization Sample
Acetone	--	--	73	42
Methylene chloride	--	5j	33	--
Toluene	--	--	3j	--

j - The associated numerical value is an estimated quantity because quality control criteria were not met. Presence of the material is reliable, however.

-- - Not detected.

TABLE 2
ORGANIC ANALYTICAL RESULTS FOR
GROUND WATER SAMPLES
BITTERROOT VALLEY SANITARY LANDFILL
VICTOR, MONTANA
TDD F08-9005-08 - PAN FMT0052XAA
CONCENTRATION IN $\mu\text{g}/\text{l}$
CASE #14772

SAMPLE #	BR-GW-1	BR-GW-2	BR-GW-3	BR-GW-4	BR-GW-5
TRAFFIC RPT #	HK018	HK019	HK020	HK026	HK022
LOCATION	BKGRND MANN WELL	ONSITE LNDFL WELL	NRTHN MOST MONITORING WELL	UPGRDNT DOMESTIC WELL	FREDIE WELL
Carbon disulfide	11	--	--	--	--
Chloroform	--	640	--	--	--
Methylene chloride	--	160b	--	--	--
1,1-dichloroethane	--	11j	--	--	--
1,2-dichloroethene	--	8j	--	--	--

b - (Used with organics). The compound was detected in the laboratory blanks. Quantity reported is $>5\times$ the amount found in the blank ($>10\times$ for methylene chloride, acetone, toluene and phthalates). A false positive result may exist.

j - The associated numerical value is an estimated quantity because quality control criteria were not met. Presence of the material is reliable, however.

-- - Not detected.

TABLE 2 CONT.
ORGANIC ANALYTICAL RESULTS FOR
GROUND WATER SAMPLES
BITTERROOT VALLEY SANITARY LANDFILL
VICTOR, MONTANA
TDD F08-9005-08 - PAN FMT0052XAA
CONCENTRATION IN µg/l
CASE #14772

SAMPLE #	BR-GW-8	BR-GW-9	BR-GW-10	D-4	D-39
TRAFFIC RPT #	HK023	HK024	HK025	HK021	HK028
LOCATION	STHRN MOST	DEEP WELL	SHALLOW	PRECUT	KITTEL
	DNGRDNT	EAST OF	AQUIFER	HOMES	WELL
	MONITORING	PRECUT	EAST OF	ONSITE	140 PINE
	WELL	HOMES	PRECUT HOMES	DRNKG WELL	DRIVE
Methylene chloride	4j	--	--	3j	--
Acetone	--	4j	3j	180	--
Chloroform	260b	110b	--	89b	--
1,1-dichloroethane	4j	--	--	--	--
Tetrachloroethene	10	2j	--	--	--
Xylene	3j	--	--	--	--
Toluene	--	--	--	--	.8j

b - (Used with organics). The compound was detected in the laboratory blanks. Quantity reported is >5x the amount found in the blank (>10x for methylene chloride, acetone, toluene and phthalates). A false positive result may exist.

j - The associated numerical value is an estimated quantity because quality control criteria were not met. Presence of the material is reliable, however.

-- - Not detected.

TABLE 2 CONT.
ORGANIC ANALYTICAL RESULTS FOR
GROUND WATER SAMPLES
BITTERROOT VALLEY SANITARY LANDFILL
VICTOR, MONTANA
TDD F08-9005-08 - PAN FMT0052XAA
CONCENTRATION IN $\mu\text{g/l}$
CASE #14772

SAMPLE #	D-40	D-42	D-43	D-49	BR-GW-11
TRAFFIC RPT #	HK029	HK031	HK032	HK033	HK034
LOCATION	DNGRDNT	MIXON	PHILSON	HUNT	VOA TRIP
	DOMESTIC	WELL	WELL	WELL	BLANK
	WELL				
Methylene chloride	--	5	3j	4j	--
Chloroform	--	--	12b	--	--

b - (Used with organics). The compound was detected in the laboratory blanks. Quantity reported is $>5\times$ the amount found in the blank ($>10\times$ for methylene chloride, acetone, toluene and phthalates). A false positive result may exist.

j - The associated numerical value is an estimated quantity because quality control criteria were not met. Presence of the material is reliable, however.

-- - Not detected.

TABLE 2 CONT.
 ORGANIC ANALYTICAL RESULTS FOR
 GROUND WATER SAMPLES
 BITTERROOT VALLEY SANITARY LANDFILL
 VICTOR, MONTANA
 TDD F08-9005-08 - PAN FMT0052XAA
 CONCENTRATION IN $\mu\text{g/l}$
 CASE #14772

SAMPLE #	BR-GW-12	BR-GW-14	BR-GW-17	BR-GW-18	BR-GW-19A
TRAFFIC RPT #	HK058	HK036	HK040	HK037	HK038
LOCATION	VOA TRIP	RINSATE	DUPLICATE	MURPHY	PETERSON
	BLANK	BLANK	OF BR-GW-5	WELL	UNFILTERED
					WELL
Methylene chloride	--	6	8	--	5j

j - The associated numerical value is an estimated quantity because quality control criteria were not met. Presence of the material is reliable, however.

-- - Not detected.

TABLE 2 CONT.
ORGANIC ANALYTICAL RESULTS FOR
GROUND WATER SAMPLES
BITTERROOT VALLEY SANITARY LANDFILL
VICTOR, MONTANA
TDD F08-9005-08 - PAN FMT0052XAA
CONCENTRATION IN $\mu\text{g/l}$
CASE #14772

SAMPLE #	BR-GW-19B
TRAFFIC RPT #	HK039
LOCATION	PETERSON HOUSEHOLD WELL

Acetone	9j
---------	----

j - The associated numerical value is an estimated quantity because quality control criteria were not met. Presence of the material is reliable, however.

TABLE 3
ORGANIC ANALYTICAL RESULTS FOR
SEDIMENT SAMPLES
BITTERROOT VALLEY SANITARY LANDFILL
VICTOR, MONTANA
TDD F08-9005-08 - PAN FMT0052XAA
CASE #14772
CONCENTRATION IN ug/kg

SAMPLE #	BR-SE-1	BR-SE-2	BR-SE-3	BR-SE-4	BR-SE-5
TRAFFIC RPT #	HK048	HK050	HK054	HK044	HK042
LOCATION	UPGRDNT	CROSSGRDNT	DWNGRDNT	CONFLUENCE	DWNGRDNT
	BEAR CREEK	BEAR CREEK	BEAR CREEK	BEAR CREEK & B-ROOT RIVER	B-ROOT RIVER

Methylene chloride	3j	2j	140	--	--
Toluene	--	--	12	--	--
Di-n-octyl phthalate	--	--	--	19j	--

j - The associated numerical value is an estimated quantity because quality control criteria were not met. Presence of the material is reliable, however.

-- - Not detected.

TABLE 3 CONT.
 ORGANIC ANALYTICAL RESULTS FOR
 SEDIMENT SAMPLES
 BITTERROOT VALLEY SANITARY LANDFILL
 VICTOR, MONTANA
 TDD F08-9005-08 - PAN FMT0052XAA
 CASE #14772
 CONCENTRATION IN ug/kg

SAMPLE #	BR-SE-6	BR-SE-7
TRAFFIC RPT #	HK053	HK046
LOCATION	UPGRDNT B-ROOT RIVER	UPGRDNT B-ROOT RIVER
Methylene chloride	2j	2j
Acetone	--	8j
Carbon disulfide	6	--

j - The associated numerical value is an estimated quantity because quality control criteria were not met. Presence of the material is reliable, however.

-- - Not detected.

TABLE 4
ORGANIC ANALYTICAL RESULTS FOR
SURFACE WATER SAMPLES
BITTERROOT VALLEY SANITARY LANDFILL
VICTOR, MONTANA
TDD F08-9005-08 - PAN FMT0052XAA
CASE #14772
CONCENTRATION IN ug/kg

SAMPLE #	BR-SW-1	BR-SW-2	BR-SW-3	BR-SW-4	BR-SW-5
TRAFFIC RPT #	HK047	HK049	HK051	HK043	HK041
LOCATION	UPGRDNT	CROSSGRDNT	DWNGRDNT	CONFLUENCE	DWNGRDNT
	BEAR CREEK	BEAR CREEK	BEAR CREEK	BEAR CREEK	B-ROOT RIVER
				B-ROOT RIVER	
Methylene chloride	--	--	--	--	2j
Toluene	--	--	--	6	7
Acetone	5j	11	--	--	--

j - The associated numerical value is an estimated quantity because quality control criteria were not met. Presence of the material is reliable, however.

-- - Not detected.

TABLE 4 CONT.
 ORGANIC ANALYTICAL RESULTS FOR
 SURFACE WATER SAMPLES
 BITTERROOT VALLEY SANITARY LANDFILL
 VICTOR, MONTANA
 TDD F08-9005-08 - PAN FMT0052XAA
 CASE #14772
 CONCENTRATION IN ug/kg.

SAMPLE #	BR-SW-6	BR-SW-7
TRAFFIC RPT #	HK052	HK045
LOCATION	UPGRDNT B-ROOT RIVER	UPGRDNT B-ROOT RIVER
Toluene	13	--
Acetone	2j	--

j - The associated numerical value is an estimated quantity because quality control criteria were not met. Presence of the material is reliable, however.

-- - Not detected.

TABLE 5
INORGANIC ANALYTICAL RESULTS FOR
SOIL SAMPLES
BITTERROOT VALLEY SANITARY LANDFILL
VICTOR, MONTANA
TDD F08-9005-08 - PAN FMT0052XAA
CASE #14772
CONCENTRATIONS IN mg/kg

SAMPLE # TRAFFIC RPT # LOCATION	BR-SO-1 MHP677 WASTE CHARACTER- IZATION SAMPLE	BR-SO-2 MHP676 WASTE CHARACTER- IZATION SAMPLE	BR-SO-3 MHP675 WASTE CHARACTER- IZATION SAMPLE	BR-SO-4 MHP674 WASTE CHARACTER- IZATION SAMPLE
Aluminum	7620	5790	10400	5710
Antimony	4.40u	4.40u	4.8u	4.30u
Arsenic	[1.50]	[1.10]	[0.94]	[2.10]
Barium	69.80	[39.8]	5.6	53.90
Beryllium	0.21u	0.21u	[0.37]	0.21u
Cadmium	0.42u	0.42u	0.64	0.41u
Calcium	1670	[491]	[1050]	1470
Chromium	4.3u	32.6	6.0	9.0
Cobalt	2.30	[4.2]	2.7	2.5u
Copper	[3.10]j	[4.6]j	[2.0]j	[4.6]j
Iron	8470j	8580j	8030j	9580j
Lead	4.0	2.2	5.9	2.4
Magnesium	2350	1380	1870	1520
Manganese	146j	111j	88.80j	134j
Mercury	0.09	0.10	0.10	0.10u
Nickel	2.3u	[3.0]	[3.2]	[3.60]
Potassium	2060	2050	2180	1850
Selenium	0.43uj	0.40uj	0.43uj	0.42uj
Silver	1.70uj	10.70uj	1.8uj	1.7uj
Sodium	[102]	[153]	[106]	[193]
Thallium	0.43j	0.40u	0.43u	0.42u
Vanadium	10.10	[8.60]	[10.10]	[8.50]
Zinc	35.20	24.30	31.60	29.60

j - The associated numerical value is an estimated quantity because quality control criteria were not met. Presence of the material is reliable, however.

u - The material was analyzed for, but was not detected. The associated numerical value is the estimated sample quantitation limit or CRDL.

[] - The associated numerical value is an estimated quantity because the amount detected is below the contract required detection limit (CRDL). Presence of the material is reliable. 'j' flags can be used in conjunction with brackets.

TABLE 6
INORGANIC ANALYTICAL RESULTS FOR
GROUND WATER SAMPLES
BITTERROOT VALLEY SANITARY LANDFILL
VICTOR, MONTANA
TDD F08-9005-08 - PAN FMT0052XAA
CASE #14772
CONCENTRATIONS IN µg/l

SAMPLE #	BR-GW-1	BR-GW-2	BR-GW-3	BR-GW-4	BR-GW-5	BR-GW-8
TRAFFIC RPT #	MHT504	MHT503	MHT505	MHT510	MHT513	MHT508
LOCATION	BCKGRND	ONSITE	NORTHERN-	UPGRDNT	FRIEDIE	DWNGRDNT
	MANN	LANDFILL	MOST MON-	DOMESTIC	WELL	MONITORING
	WELL	WELL	ITORING	WELL		WELL
			WELL			
Aluminum	108u	36u	36u	36u	36u	36u
Antimony	21u	21u	21u	21u	21u	21u
Arsenic	2.0u	[2.4]	2.0u	2.0u	2.0u	2.0u
Barium	[42.40]	[107]	5.5u	16.6u	[58.40]	[43.0]
Beryllium	1.0u	1.0u	1.0u	1.0u	1.0u	1.0u
Cadmium	2.0u	2.0u	2.0u	2.0u	2.0u	2.0u
Calcium	6670	78700	[1680]	6190	9900	99200
Chromium	4.0u	4.0u	4.0u	4.0u	4.0u	4.0u
Cobalt	3.0u	[11.2]	3.0u	3.0u	3.0u	3.0u
Copper	5.0u	5.0u	5.0u	5.0u	5.0u	5.0u
Iron	1360	1530	183	[37.5]j	315	[36.70]j
Lead	[2.70]	2.0u	2.0u	2.0u	2.0u	2.0u
Magnesium	[1510]	18300	[250]	[1140]	[2340]	21300
Manganese	6.7u	353	102	2.5u	7.5u	183
Mercury	0.2u	0.34	0.20u	0.20u	0.20u	0.20u
Nickel	11.0u	11.0u	11.0u	11.0u	11.0u	11.0u
Potassium	[729]	1320	[406]	[518]	[870]	[1310]
Selenium	15.0uj	15.0uj	3.0uj	15.0uj	15.0uj	15.0uj
Silver	8.0u	8.0u	8.0u	8.0u	8.0u	8.0u
Sodium	6570	7150	[1450]	5910	8690	10600
Thallium	2.0uj	2.0uj	2.0uj	2.0uj	2.0uj	2.0uj
Vanadium	4.0u	4.0u	4.0u	4.0u	4.0u	4.0u
Zinc	153	28.90	35	20.90	[11.20]	15.60

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TABLE 6 CONT.
INORGANIC ANALYTICAL RESULTS FOR
GROUND WATER SAMPLES
BITTERROOT VALLEY SANITARY LANDFILL
VICTOR, MONTANA
TDD F08-9005-08 - PAN FMT0052XAA
CASE #14772
CONCENTRATIONS IN µg/l

SAMPLE #	BR-GW-9	BR-GW-10	D-4	D-39	D-40	D-42
TRAFFIC RPT #	MHT507	MHT506	MHT509	MHT516	MHT512	MHT518
LOCATION	DEEP WELL	SHALLOW	PRECUT	KITTEL	DWNGRDNT	MIXON
	PRECUT	WELL	HOMES	WELL	DOMESTIC	WELL
	HOMES	PRECUT	ONSITE	140 PINE	WELL	
		HOMES	DRINKING	DRIVE		
			WELL			
Aluminum	36.0u	56.5u	69.9u	36.0u	49.5u	36.0u
Antimony	21.0u	21.0u	21.0u	21.0u	21.0u	21.0u
Arsenic	2.0u	2.0u	2.0u	2.0u	2.0u	2.0u
Barium	[44.2]	4.7u	[39.0]	[24.30]	4.7u	8.10u
Beryllium	1.0u	1.0u	1.0u	1.0u	1.0u	1.0u
Cadmium	2.0u	2.0u	2.0u	2.0u	2.0u	2.0u
Calcium	15600	2430	23300	6580	5840	9320
Chromium	4.0u	4.0u	4.0u	4.0u	4.0u	4.0u
Cobalt	3.0u	3.0u	3.0u	3.0u	3.0u	3.0u
Copper	5.0u	[13.90]	34.5	5.0	5.0u	[6.7]
Iron	[50.40]j	[59.70]j	123.0	371.0	[26.40]j	100.0
Lead	2.0u	2.0u	[2.5]	2.0u	2.0u	[2.4]
Magnesium	[3260]	[403]	5010	[1360]	[1480]	[1810]
Manganese	6.4u	3.3u	[10.30]u	4.4u	1.9u	11.70u
Mercury	0.20u	0.20u	0.20u	0.20u	0.20u	0.20u
Nickel	11.0u	11.0u	11.0u	11.0u	11.0u	11.0u
Potassium	[1060]	[550]	[1010]	[814]	[790]	[612]
Selenium	15.0uj	3.0uj	15.0uj	3.0uj	3.0uj	3.0uj
Silver	8.0u	8.0u	8.0u	8.0u	8.0u	8.0u
Sodium	6470	[3110]	7870	6530	[3960]	6450
Thallium	2.0uj	2.0u	2.0uj	2.0uj	2.0uj	2.0uj
Vanadium	4.0u	4.0u	4.0u	4.0u	4.0u	4.0u
Zinc	39.50	73.70	527.0	72.20	186.0	477.0

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TABLE 6 CONT.
INORGANIC ANALYTICAL RESULTS FOR
GROUND WATER SAMPLES
BITTERROOT VALLEY SANITARY LANDFILL
VICTOR, MONTANA
TDD F08-9005-08 - PAN FMT0052XAA
CASE #14772
CONCENTRATIONS IN µg/l

SAMPLE # TRAFFIC RPT # LOCATION	D-43 MHT517 PHILSON WELL	D-49 MHT515 HUNT WELL	BR-GW-14 MHT511 RINSATE BLANK	BR-GW-17 MHT514 DUP. OF BR-GW-5	BR-GW-18 MHT198 MURPHY WELL	BR-GW-19A MHT501 PETERSON UNFILTERED WELL	BR-GW-19B MHT502 PETERSON FILTERED WELL
Aluminum	36.0	66.0u	56.5u	36.0u	36.0u	36.0u	36.0u
Antimony	21.0u	21.0u	21.0u	21.0u	21.0u	21.0u	21.0u
Arsenic	2.0u	2.0u	2.0u	2.0u	2.0u	2.0u	2.0u
Barium	13.0u	6.5u	5.3u	[59.60]	[29.40]	[24.30]	19.7u
Beryllium	1.0u	1.0u	1.0u	1.0u	1.0u	1.0u	1.0u
Cadmium	2.0u	2.0u	2.0u	2.0u	2.0u	[3.0]	2.0u
Calcium	20400	10000	47.30u	10100	7090	7110	7100
Chromium	4.0u	4.0u	4.0u	4.0u	4.0u	4.0u	4.0u
Cobalt	3.0u	3.0u	3.0u	3.0u	3.0u	3.0u	3.0u
Copper	5.0u	5.0u	5.0u	5.0u	5.0u	[9.10]	[7.0]
Iron	[86.70]j	[77.40]	[53.10]j	344.0	211.0	3220.0	[38.10]j
Lead	2.0u	2.0u	2.0u	2.0u	11.5	5.0	[2.2]
Magnesium	[4050]	[1950]	31.0u	[2410]	1530	1480	[3290]
Manganese	3.3u	1.1u	1.9u	7.5u	3.6u	8.6u	19.0
Mercury	0.20u	0.20u	0.20u	0.20u	0.20u	0.20u	0.20u
Nickel	11.0u	11.0u	11.0u	11.0u	11.0u	11.0u	11.0u
Potassium	[1050]	[659]	136.0u	[908]	[718]	[704]	[691]
Selenium	15.0uj	3.0uj	3.0uj	15.0uj	15.0uj	15.0uj	3.0uj
Silver	8.0u	8.0u	8.0u	8.0u	8.0u	8.0u	8.0u
Sodium	8410	5450	120.0u	8900	6350	5110	5150
Thallium	2.0uj	2.0uj	2.0uj	2.0uj	2.0uj	2.0u	2.0uj
Vanadium	4.0u	4.0u	4.0u	4.0u	4.0u	4.0u	4.0u
Zinc	84.90	70.80	[17.10]	[10.40]	76.0	713.0	44.0

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TABLE 7
INORGANIC ANALYTICAL RESULTS FOR
SEDIMENT SAMPLES
BITTERROOT VALLEY SANITARY LANDFILL
VICTOR, MONTANA
TDD F08-9005-08 - PAN FMT0052XAA
CASE #14772
CONCENTRATIONS IN mg/kg

SAMPLE #	BR-SE-1	BR-SE-2	BR-SE-3	BR-SE-4	BR-SE-5	BR-SE-6	BR-SE-7
TRAFFIC RPT #	MHT669	MHT671	MHT673	MHT521	MHT519	MHT525	MHT524
LOCATION	UPGRDNT BEAR CREEK	CROSS- GRDNT BEAR CREEK	DWNGRDNT BEAR CREEK	CONFLUENCE BEAR CREEK & B-ROOT RIVER	DWNGRDNT B-ROOT RIVER	UPGRDNT B-ROOT RIVER	UPGRDNT B-ROOT RIVER
Aluminum	1230	1230	2910	1380	2860	2650	1780
Antimony	5.2	5.10	5.4	5.0u	5.8u	4.8	5.10u
Arsenic	[0.84]	[0.74]	[0.81]	[0.50]	0.54	0.46	0.51u
Barium	[7.0]	[8.0]	[17.30]	[11.60]	[24.80]	[19.30]	[14.20]
Beryllium	0.25	0.24	0.26	0.24u	0.27u	0.23	0.24u
Cadmium	0.49	0.49	0.52	0.47u	0.55u	0.46	0.49u
Calcium	[199]	[169]	[41.4]	[183]	[758]	[763]	[386]
Chromium	1.6	1.4	2.3	1.3u	4.8u	4.3	3.1u
Cobalt	0.74	1.10	1.4	0.71u	2.10u	1.8	0.97u
Copper	1.2j	1.2j	1.3j	1.2uj	[2.70]j	2.10j	1.2uj
Iron	1580j	1650j	2860j	1770j	4220j	3650j	2210j
Lead	0.86	0.77	2.5	0.85	2.7	2.2	1.3
Magnesium	[348]	[342]	[643]	[405]	1250	1040	[653]
Manganese	29.80j	48.50	89.60j	33.10j	51.10j	37.60j	24.30j
Mercury	0.12	0.11	0.11	0.11u	0.13	0.16	0.13u
Nickel	2.70	2.70	2.80	2.60u	3.0	2.5	2.7u
Potassium	[199]	[253]	[463]	[393]	722	[627]	[405]
Selenium	0.48j	0.48j	0.51j	0.50uj	0.54uj	0.46j	0.51uj
Silver	2.0j	2.0j	2.10j	1.9uj	2.20uj	1.80j	1.9uj
Sodium	53.0	[46.10]	[69.3]	[80.5]	[78.4]	[85.3]	[71.8]
Thallium	0.48	0.48	0.51	[0.50]u	0.54u	0.46	0.51u
Vanadium	2.60	[2.4]	[3.90]	[2.0]	[5.80]	[4.90]	[3.30]
Zinc	8.90	8.30	13.60	7.80u	18.20	15.40	8.5u

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TABLE 8
INORGANIC ANALYTICAL RESULTS FOR
SURFACE WATER SAMPLES
BITTERROOT VALLEY SANITARY LANDFILL
VICTOR, MONTANA
TDD F08-9005-08 - PAN FMT0052XAA
CASE #14772
CONCENTRATIONS IN $\mu\text{g/l}$

SAMPLE # TRAFFIC RPT # LOCATION	BR-SW-1 MHT668 UPGRDNT BEAR CREEK	BR-SW-2 MHT670 CROSS- GRDNT BEAR CREEK	BR-SW-3 MHT672 DWNGRDNT BEAR CREEK	BR-SW-4 MHT520 CONFLUENCE BEAR CREEK & B-ROOT RIVER	BR-SW-5 MHT678 DWNGRDNT B-ROOT RIVER	BR-SW-6 MHT523 UPGRDNT B-ROOT RIVER	BR-SW-7 MHT522 UPGRDNT B-ROOT RIVER
Aluminum	127.0	98.5	84.20	95.40u	[85.90]	[72.80]	[37.80]
Antimony	10.0u	10.0u	10.0u	21.0u	10.0u	10.0u	10.0u
Arsenic	2.0uj	[2.4j]	2.0uj	2.0u	2.0uj	2.0uj	2.0uj
Barium	[4.20]	[4.20]	[4.20]	5.30u	[17.20]	[19.20]	[22.90]
Beryllium	1.0u	1.0u	1.0u	1.0u	1.0u	1.0u	1.0u
Cadmium	2.0u	2.0u	2.0u	2.0u	2.0u	2.0u	2.0u
Calcium	[210]	[2350]	[2210]	[2360]	10500	11000	10600
Chromium	5.0u	5.0u	5.0u	4.0u	5.0u	5.0u	5.0u
Cobalt	4.0u	4.0u	4.0u	3.0u	4.0u	4.0u	4.0u
Copper	3.0u	3.0u	3.0u	5.0u	3.0u	3.0u	3.0u
Iron	[76.0]	138.0	[74.40]	[74.90j]	147.0	129.0	[75.20]
Lead	[1.10]	[1.40]	1.0u	2.0u	66.0j	[1.40j]	11.30
Magnesium	[402]	[413]	[425]	[354]	[3200]	[2330]	[2530]
Manganese	7.0u	[8.6]	7.0u	6.1u	[8.6]	[8.6]	[12.60]
Mercury	0.20u	0.20u	0.20u	0.20u	0.20u	0.20u	0.20u
Nickel	5.0u	5.0u	5.0u	11.0u	5.0u	5.0u	5.0u
Potassium	780.0u	780.0u	780.0u	[532]	[1240]	[1260]	[1850]
Selenium	3.0uj	3.0uj	3.0uj	3.0uj	3.0uj	3.0uj	3.0uj
Silver	4.0uj	4.0uj	4.0uj	8.0uj	4.0uj	4.0uj	4.0uj
Sodium	[1710]	[1740]	[1790]	[2390]	[3690]	[3800]	[4320]
Thallium	2.0u	2.0uj	2.0uj	2.0uj	2.0uj	2.0uj	2.0uj
Vanadium	3.0u	3.0u	3.0u	4.0u	3.0u	3.0	3.0u
Zinc	[5.50j]	2.0uj	2.0uj	34.20	2.0uj	2.0uj	2.0

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APPENDIX C

SITE INSPECTION REPORT

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT						I. IDENTIFICATION	
PART 1 - SITE LOCATION AND INSPECTION INFORMATION						01 STATE MT	02 SITE NUMBER D980955702
II. SITE NAME AND LOCATION							
01 SITE NAME (Legal, common, or descriptive name of site) Bitterroot Valley Sanitary Landfill				02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER 1 mile south of Victor on Highway 93			
03 CITY Victor				04 STATE MT	05 ZIP CODE 59875	06 COUNTY Ravalli	07 COUNTY CODE 081
						08 CONG DIST MT01	
09 COORDINATES		10 TYPE OF OWNERSHIP (Check one)					
LATITUDE 46° 24' 10"	LONGITUDE 114° 08' 12"	<input checked="" type="checkbox"/> A. PRIVATE <input type="checkbox"/> B. FEDERAL <input type="checkbox"/> C. STATE <input type="checkbox"/> D. COUNTY <input type="checkbox"/> E. MUNICIPAL <input type="checkbox"/> F. OTHER _____ <input type="checkbox"/> G. UNKNOWN					
III. INSPECTION INFORMATION							
01 DATE OF INSPECTION 8/12/90 MO/DAY/YR		02 SITE STATUS <input checked="" type="checkbox"/> ACTIVE <input type="checkbox"/> INACTIVE		03 YEARS OF OPERATION 1966 Present UNKNOWN BEGINNING YEAR ENDING YEAR			
04 AGENCY PERFORMING INSPECTION (Check all that apply)							
<input checked="" type="checkbox"/> A. EPA <input checked="" type="checkbox"/> B. EPA CONTRACTOR E & E <input type="checkbox"/> C. MUNICIPAL <input type="checkbox"/> D. MUNICIPAL CONTRACTOR <div style="text-align: center;">(Name of firm) _____ (Name of firm) _____</div> <input type="checkbox"/> E. STATE <input type="checkbox"/> F. STATE CONTRACTOR <input type="checkbox"/> G. OTHER _____ <div style="text-align: center;">(Name of firm) _____ (Specify) _____</div>							
05 CHIEF INSPECTOR Kevin Mackey		06 TITLE Hydrologist		07 ORGANIZATION E & E-FIT		08 TELEPHONE NO. (303) 757-4984	
09 OTHER INSPECTORS Stacey Smith		10 TITLE Chemist		11 ORGANIZATION "		12 TELEPHONE NO. "	
John DuWaldt		Biologist		"		"	
Dan Kenney		Technician/Driller		"		"	
John Brown		Technician		"		"	
13 SITE REPRESENTATIVES INTERVIEWED Charles W. Mann		14 TITLE Landfill Owner		15 ADDRESS P.O. Box 10 Victor, MT		16 TELEPHONE NO. (406) 642-3531	
17 ACCESS GAINED BY (Check one) <input checked="" type="checkbox"/> PERMISSION <input type="checkbox"/> WARRANT		18 TIME OF INSPECTION 0800		19 WEATHER CONDITIONS Weather was variable throughout the week ranging from sunny and hot to rainy and cloudy.			
IV. INFORMATION AVAILABLE FROM							
01 CONTACT Ron Bertram				02 OF (Agency/Organization) EPA-Helena, MT Office			
03 TELEPHONE NO. (406) 449-5414							
04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM Kevin Mackey		05 AGENCY EPA		06 ORGANIZATION E & E-FIT		07 TELEPHONE NO. (303) 757-4984	
						08 DATE 11/26/90	

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

01 STATE	02 SITE NUMBER
MT	D980955702

01 PHYSICAL STATES	02 WASTE QUANTITY AT SITE	03 WASTE CHARACTERISTICS
(Check all that apply)	(Measures of waste quantities must be independent)	(Check all that apply)
<input checked="" type="checkbox"/> A. SOLID		<input checked="" type="checkbox"/> A. TOXIC
<input type="checkbox"/> E. SLURRY		<input checked="" type="checkbox"/> E. SOLUBLE
<input type="checkbox"/> B. POWDER, FINES		<input checked="" type="checkbox"/> I. HIGHLY VOLATILE
<input checked="" type="checkbox"/> F. LIQUID		<input type="checkbox"/> J. EXPLOSIVE
<input type="checkbox"/> C. SLUDGE		<input type="checkbox"/> B. CORROSIVE
<input type="checkbox"/> G. GAS		<input type="checkbox"/> F. INFECTIOUS
<input type="checkbox"/> D. OTHER _____	TONS _____	<input type="checkbox"/> C. RADIOACTIVE
(Specify)	CUBIC YARDS _____	<input type="checkbox"/> G. FLAMMABLE
	NO. OF DRUMS _____	<input type="checkbox"/> D. PERSISTENT
		<input type="checkbox"/> H. IGNITABLE
		<input type="checkbox"/> K. REACTIVE
		<input type="checkbox"/> L. INCOMPATIBLE
		<input type="checkbox"/> M. NOT APPLICABLE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS	= 1295	Kilograms	This figure encompasses all Target
IOC	INORGANIC CHEMICALS			Compound List materials including
ACD	ACIDS			organic and inorganic constituents.
BAS	BASES			
MES	HEAVY METALS			

[illegible]

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	N/A		FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

Waste Inventory Provided by Charles Mann, Owner, Bitterroot Valley Sanitary Landfill.
Analytical Results from Site Sampling Effort Conducted August 21, 1990 through August 25, 1990.

EPA

POTENTIAL HAZARDOUS WASTE SITE

SITE INSPECTION REPORT

I. IDENTIFICATION

01 STATE 02 SITE NUMBER
MT D980955702

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

II. HAZARDOUS CONDITIONS AND INCIDENTS

- 01 ☒ A. GROUND WATER CONTAMINATION 02 ☒ OBSERVED (DATE: 08/21/90) ☐ POTENTIAL ☐ ALLEGED
 03 POPULATION POTENTIALLY AFFECTED: 1200 04 NARRATIVE DESCRIPTION
 Hazardous materials deposited at the landfill have percolated to the ground water and are present in well samples (including domestic wells) as far as one-half mile downgradient of the site.
- 1 ☒ B. SURFACE WATER CONTAMINATION 02 ☒ OBSERVED (DATE: 08/21/90) ☐ POTENTIAL ☐ ALLEGED
 3 POPULATION POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION
 Samples collected from Bear Creek (northern boundary of landfill) showed methylene chloride concentrations of 140 mg/kg in Bear Creek sediments.
- 01 ☒ C. CONTAMINATION OF AIR 02 ☐ OBSERVED (DATE:) ☐ POTENTIAL ☐ ALLEGED
 3 POPULATION POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION
 Materials deposited onsite are immediately covered with a soil cap. Volatilization and erosion transport of materials offsite is unlikely due to the care taken to prevent wind transport of materials offsite.
- 1 ☒ D. FIRE/EXPLOSIVE CONDITIONS 02 ☐ OBSERVED (DATE:) ☒ POTENTIAL ☐ ALLEGED
 03 POPULATION POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION
 Due to the volatile nature of contaminants deposited in the landfill area the potential exists for explosive conditions onsite. However, during soil boring activities, the FIT did not record any explosimeter/O₂ meter readings which indicated a potential for explosion or fire onsite.
- 1 ☒ E. DIRECT CONTACT 02 ☐ OBSERVED (DATE:) ☒ POTENTIAL ☐ ALLEGED
 3 POPULATION POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION
 Contamination of sediment in nearby Bear Creek may pose a direct contact hazard to individuals walking, or children playing, in the creek bottom.
- 01 ☒ F. CONTAMINATION OF SOIL 02 ☒ OBSERVED (DATE: 08/21/90) ☐ POTENTIAL ☐ ALLEGED
 3 AREA POTENTIALLY AFFECTED: 1200 04 NARRATIVE DESCRIPTION
 Subsurface samples collected from a low lying area west of the landfill showed elevated levels of volatile organic compounds (VOCs) at a depth of five feet below ground surface. Additional sediment samples collected from Bear Creek also indicated contamination is present in sediment downgradient of the landfill.
- 01 ☒ G. DRINKING WATER CONTAMINATION 02 ☒ OBSERVED (DATE: 08/21/90) ☐ POTENTIAL ☐ ALLEGED
 03 POPULATION POTENTIALLY AFFECTED: 1200 04 NARRATIVE DESCRIPTION
 Samples collected from monitoring wells and domestic wells downgradient of the landfill facility show elevated levels of chloroform and methylene chloride. Trace levels of chloroform were detected in domestic wells approximately one-half mile east and downgradient of the landfill site. Water samples collected from the Precut Homes drinking well (no longer used due to documented ground water contamination) showed high levels of chloroform contamination (89 µg/l). At one time this well served approximately 37 employees.
- 1 ☒ H. WORKER EXPOSURE/INJURY 02 ☒ OBSERVED (DATE: 09/15/87) ☐ POTENTIAL ☐ ALLEGED
 3 WORKERS POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION
 Richard Moraca, landfill operator, used to drink out of onsite well BR-GW-2. Past analysis of this well had detected elevated levels of chloroform and methylene chloride. Drinking use of this well has since been halted, but significant exposure may have already occurred.
- 01 ☒ I. POPULATION EXPOSURE/INJURY 02 ☒ OBSERVED (DATE: 08/21/90) ☐ POTENTIAL ☐ ALLEGED
 3 POPULATION POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION
 Contamination of ground water underlying and downgradient of the landfill facility may result in exposure of individuals living downgradient of the landfill.

POTENTIAL HAZARDOUS WASTE SITE		I. IDENTIFICATION	
EPA	SITE INSPECTION REPORT	01 STATE MT	02 SITE NUMBER D980555702
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS			
II. HAZARDOUS CONDITIONS AND INCIDENTS (CONTINUED)			
01 <u> </u> J. DAMAGE TO FLORA	02 <u> </u> OBSERVED (DATE: <u> </u>)	<u> </u> POTENTIAL	<u> </u> ALLEGED
04 NARRATIVE DESCRIPTION None noted or observed.			
01 <u> </u> X K. DAMAGE TO FAUNA	02 <u> </u> OBSERVED (DATE: <u> </u>)	<u> </u> X POTENTIAL	<u> </u> ALLEGED
04 NARRATIVE DESCRIPTION (Include name(s) of species) Releases of contaminants to surface water may have an adverse impact on the riparian habitat associated with Bear Creek and the Bitterroot River. Sediment samples collected from Bear Creek showed elevated levels of methylene chloride in surface sediment.			
01 <u> </u> X L. CONTAMINATION OF FOOD CHAIN	02 <u> </u> OBSERVED (DATE: <u> </u>)	<u> </u> X POTENTIAL	<u> </u> ALLEGED
04 NARRATIVE DESCRIPTION Contamination of surface sediments may impact ecosystems associated with the Bear Creek drainage. The Bitterroot River, located downgradient of the landfill, sustains a blue ribbon fishery supporting large populations of rainbow, brown and cutthroat trout.			
01 <u> </u> X M. UNSTABLE CONTAINMENT OF WASTES	02 <u> </u> X OBSERVED (DATE: <u>08/21/90</u>)	<u> </u> POTENTIAL	<u> </u> ALLEGED
(Spills/runoff/standing liquids/leaking drums)			
03 POPULATION POTENTIALLY AFFECTED: <u> </u> 04 NARRATIVE DESCRIPTION Fast disposal practices of laboratory wastes included open dumping of volatile liquid material into a shallow unlined disposal pit. The material underlying this pit consists of porous gravels and cobbles which readily allows waste to percolate into and migrate through aquifers underlying and downgradient of the site.			
01 <u> </u> N. DAMAGE TO OFFSITE PROPERTY	02 <u> </u> OBSERVED (DATE: <u> </u>)	<u> </u> POTENTIAL	<u> </u> ALLEGED
04 NARRATIVE DESCRIPTION None noted or observed.			
01 <u> </u> O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTs	02 <u> </u> OBSERVED (DATE: <u> </u>)	<u> </u> POTENTIAL	<u> </u> ALLEGED
04 NARRATIVE DESCRIPTION None noted or observed.			
01 <u> </u> P. ILLEGAL/UNAUTHORIZED DUMPING	02 <u> </u> OBSERVED (DATE: <u> </u>)	<u> </u> POTENTIAL	<u> </u> ALLEGED
04 NARRATIVE DESCRIPTION None reported or observed.			
05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS None reported or observed.			
III. TOTAL POPULATION POTENTIALLY AFFECTED: <u>1200</u>			
IV. COMMENTS Conversations with area residents place the population within a four mile radius of the site at approximately 1200 individuals.			
V. SOURCES OF INFORMATION (Cite specific references. e.g., state files, sample analysis, reports) Montana Department of Natural Resources and Conservation (DNRC), February 16, 1989, Water Rights Data. Waste Manifests provided to E & E-FIT by Charles Mann, Landfill Owner, August 25, 1990. Results of Samples Collected from Ground Water and Surface Water, August 21-25, 1990. Interviews with local residents near the Bitterroot Valley Sanitary Landfill, August 21-25, 1990.			

POTENTIAL HAZARDOUS WASTE SITE

SITE INSPECTION REPORT

PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 STATE MT 02 SITE NUMBER D980955702

EPA

II. PERMIT INFORMATION

01 PERMIT NUMBER	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
1. DATE OF PERMIT ISSUED (Check all that apply)				
<input type="checkbox"/> A. NPDES				
<input type="checkbox"/> B. UIC				
<input type="checkbox"/> C. AIR				
<input type="checkbox"/> D. RCRA				
<input type="checkbox"/> E. RCRA INTERIM STATUS				
<input type="checkbox"/> F. SPCC PLAN				
<input checked="" type="checkbox"/> G. STATE (Specify)		No Permit No.	1978	Group II and III Wastes
<input type="checkbox"/> H. LOCAL (Specify)				
<input type="checkbox"/> I. OTHER (Specify)				
<input type="checkbox"/> J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL	02 AMOUNT	03 UNIT OF MEASURE	04 TREATMENT	05 Other
(Check all that apply)				
<input type="checkbox"/> A. SURFACE IMPOUNDMENT			<input type="checkbox"/> A. INCINERATION	
<input type="checkbox"/> B. PILES			<input type="checkbox"/> B. UNDERGROUND INJECTION	<input checked="" type="checkbox"/> A. BUILDINGS ON SITE
<input type="checkbox"/> C. DRUMS, ABOVE GROUND			<input type="checkbox"/> C. CHEMICAL/PHYSICAL	
<input type="checkbox"/> D. TANK, ABOVE GROUND			<input type="checkbox"/> D. BIOLOGICAL	06 AREA OF SITE
<input type="checkbox"/> E. TANK, BELOW GROUND			<input type="checkbox"/> E. WASTE OIL PROCESSING	40 (Acres)
<input checked="" type="checkbox"/> F. LANDFILL			<input type="checkbox"/> F. SOLVENT RECOVERY	
<input type="checkbox"/> LANDFARM			<input type="checkbox"/> G. OTHER RECYCLING/RECOVERY	
<input type="checkbox"/> H. OPEN DUMP			<input type="checkbox"/> H. OTHER	
<input type="checkbox"/> I. OTHER			(Specify)	
(Specify)				

COMMENTS

In 1978, the landfill owner was granted a solid waste management license and received a permit to accept Group II and III wastes. This permit conditionally allowed receipt of up to 200 kilograms of hazardous waste per month. Wastes received at this facility included volatile organic compounds and metal salts from the U.S. Department of Agriculture (USDA) laboratory near Hamilton, and immunological wastes from Ribi Immunochem, Inc. in Hamilton.

IV. CONTAINMENT

CONTAINMENT OF WASTES (Check one)

☐ A. ADEQUATE, SECURE ☐ B. MODERATE ☐ C. INADEQUATE, POOR ☒ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

Hazardous wastes were deposited in an approximate 10 foot deep by 15 foot high by 5 foot wide unlined pit. Wastes were typically in a liquid state.

V. ACCESSIBILITY

WASTE EASILY ACCESSIBLE: ☐ YES ☒ NO

COMMENTS

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

Montana Department of Health and Environmental Science, May 6, 1987, Preliminary Assessment.
Chen-Northern, Inc., December 22, 1989, Report on Ground Water Monitoring at the Bitterroot Valley Sanitary Landfill.
Charles Mann, Landfill Owner, August 21 through 28, 1990, Personal Communication.

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT			I. IDENTIFICATION	
EPA PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA			01 STATE MT	02 SITE NUMBER D980955702
II. DRINKING WATER SUPPLY				
01 TYPE OF DRINKING SUPPLY (Check as applicable) SURFACE WELL COMMUNITY A. _____ B. _____ NON-COMMUNITY C. _____ D. <u>X</u>		02 STATUS ENDANGERED A. _____ AFFECTED B. _____ MONITORED C. _____ D. _____ E. <u>X</u> F. _____		03 DISTANCE TO SITE A. _____ (mi) B. <u>.1</u> (mi)
III. GROUND WATER				
01 GROUND WATER USE IN VICINITY (Check one) <u>X</u> A. ONLY SOURCE FOR DRINKING <u> </u> B. DRINKING (Other sources available) <u> </u> C. COMMERCIAL, INDUSTRIAL IRRIGATION (Limited other sources available) <u> </u> D. NOT USED, UNUSABLE COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available)				
02 POPULATION SERVED BY GROUND WATER <u>1200</u>		03 DISTANCE TO NEAREST DRINKING WATER WELL <u>.1</u> (mi)		
04 DEPTH TO GROUNDWATER = <u>15</u> (ft)	05 DIRECTION OF GROUNDWATER FLOW <u>East-northeast</u>	06 DEPTH TO AQUIFER OF CONCERN = <u>15</u> (ft)	07 POTENTIAL YIELD OF AQUIFER <u>Unknown</u> (gpd)	08 SOLE SOURCE AQUIFER <u>X YES</u> <u>NO</u>
09 DESCRIPTION OF WELLS (Including usage, depth, and location relative to population and buildings) The area downgradient of the facility is dotted with several domestic wells. These wells vary in depth from approximately 30 to 100 feet and tap both the shallow and deeper aquifer systems.				
10 RECHARGE AREA <u>X YES</u> COMMENTS <u>NO</u> The site potentially lies in the recharge area for both the shallow and deep aquifers.		11 DISCHARGE AREA <u>YES</u> COMMENTS <u>NO</u> Shallow ground water potentially discharges into nearby Bear Creek via springs and seeps.		
IV. SURFACE WATER				
01 SURFACE WATER USE (Check one) <u>X</u> A. RESERVOIR, RECREATION DRINKING WATER SOURCE <u>X</u> B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES <u> </u> C. COMMERCIAL, INDUSTRIAL <u> </u> D. NOT CURRENTLY USED				
02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER				
NAME: <u>Bear Creek</u> <u>Bitterroot River</u>		AFFECTED <u>X</u> <u> </u> <u> </u>		DISTANCE TO SITE <u>= .2</u> (mi) <u>= .5</u> (mi) <u> </u> (mi)
V. DEMOGRAPHIC AND PROPERTY INFORMATION				
01 TOTAL POPULATION WITHIN ONE (1) MILE OF SITE TWO (2) MILES OF SITE THREE (3) MILES OF SITE A. <u>75</u> B. <u>500</u> C. <u>1200</u> NO. OF PERSONS NO. OF PERSONS NO. OF PERSONS			02 DISTANCE TO NEAREST POPULATION <u>.1</u> (mi)	
03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE <u>= 184</u>			04 DISTANCE TO NEAREST OFF-SITE BUILDING <u>.1</u> (mi)	
05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area) The population within the vicinity of the site consists largely of rural single-family dwellings. In addition, there are several small commercial establishments, including log home construction facilities. There are four towns within a 15 miles radius of the site: Hamilton, population 2,661; Stevensville, population 1,207; Victor and Corvallis are not incorporated, thus no census data is available. Conversations with local residents place the approximate population Victor and the surrounding area at approximately 1,200 individuals.				

POTENTIAL HAZARDOUS WASTE SITE

SITE INSPECTION REPORT

I. IDENTIFICATION

EPA

PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

01 STATE MT 02 SITE NUMBER D980955702

I. ENVIRONMENTAL INFORMATION

1. PERMEABILITY OF UNSATURATED ZONE (Check one)

A. $10^{-6} - 10^{-8}$ cm/sec B. $10^{-4} - 10^{-6}$ cm/sec C. $10^{-4} - 10^{-3}$ cm/sec X D. GREATER THAN 10^{-3} cm/sec

PERMEABILITY OF BEDROCK (Check one)

A. IMPERMEABLE X B. RELATIVELY IMPERMEABLE C. RELATIVELY PERMEABLE D. VERY PERMEABLE
(Less than 10^{-6} cm/sec) ($10^{-4} - 10^{-6}$ cm/sec) ($10^{-2} - 10^{-4}$ cm/sec) (Greater than 10^{-2} cm/sec)

DEPTH TO BEDROCK > 200 (ft) 04 DEPTH OF CONTAMINATED SOIL ZONE = 5 (ft) 05 SOIL pH Unknown

NET PRECIPITATION 12.75 (in) 07 TWO YEAR 24 HOUR RAINFALL = 1.25 (in) 08 SLOPE SITE SLOPE 3 % DIRECTION OF SITE SLOPE East TERRAIN AVERAGE SLOPE 5 %

FLOOD POTENTIAL SITE IS IN Unknown YEAR FLOOD PLAN 10 SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum) ESTUARINE OTHER 12 DISTANCE TO CRITICAL HABITAT (of endangered species) (mi) A. 10 (mi) B. 1.0 (mi) ENDANGERED SPECIES:

13 LAND USE IN VICINITY

DISTANCE TO: RESIDENTIAL AREAS: NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES AGRICULTURAL LANDS PRIME AG LAND AG LAND. A. .1 (mi) B. 1.0 (mi) C. (mi) D. 1.5 (mi)

DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

The Bitterroot Valley Sanitary Landfill is situated at the eastern edge of a low terrace, approximately one-half mile west of the Bitterroot River near the site of an abandoned gravel pit. The site lies within the Bitterroot valley, a north-south trending intermountain basin encompassing approximately 300 square miles.

II. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Ecology and Environment, Inc., June 1990, Listing Site Inspection Work Plan for the Bitterroot Valley Sanitary Landfill.
USGS, 1967, Victor, Montana Quadrangle.
Chen-Northrup, Inc., December 22, 1989, Report on Ground Water Monitoring at the Bitterroot Valley Sanitary Landfill, Victor, Montana.

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT		I. IDENTIFICATION	
PART 6 - SAMPLE AND FIELD INFORMATION		01 STATE MT	02 SITE NUMBER D980955702
II. SAMPLES TAKEN			
SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUND WATER	19	Organics: Southwest Labs of Oklahoma Inorganics: Skinner and Sherman Laboratories	Currently Available
SURFACE WATER	7	Organics: Southwest Labs of Oklahoma Inorganics: Skinner and Sherman Laboratories	Currently Available
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL	4	Organics: Southwest Labs of Oklahoma Inorganics: Skinner and Sherman Laboratories	Currently Available
VEGETATION			
SEDIMENT	7	Organics: Southwest Labs of Oklahoma Inorganics: Skinner and Sherman Laboratories	Currently Available
III. FIELD MEASUREMENTS TAKEN			
01 TYPE pH	02 COMMENTS		
Specific Conductance	Specific conductance ranged from a low of approximately 40 umhos/cm to a high of 1600 umhos/cm.		
IV. PHOTOGRAPHS AND MAPS			
01 TYPE <input checked="" type="checkbox"/> GROUND <input type="checkbox"/> AERIAL		02 IN CUSTODY OF <u>Ecology and Environment, Inc.</u> (Name of organization or individual)	
03 MAPS <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	04 LOCATION OF MAPS <u>Ecology and Environment, Inc</u>		
V. OTHER FIELD DATA COLLECTED (Provide narrative description)			
Water levels were recorded from monitoring wells near the site. Additional information includes a measurement of burial area dimensions (for waste quantity estimates) and a compilation of waste manifests received by FIT personnel during the August 21 through 25, 1990 site inspection.			
VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)			
<u>Ecology and Environment, Inc., August 21 through 25, 1990, Listing Site Inspection.</u>			

POTENTIAL HAZARDOUS WASTE SITE				I. IDENTIFICATION	
SITE INSPECTION REPORT				01 STATE MT	
PART 8 - OPERATOR INFORMATION				02 SITE NUMBER D980955702	
II. CURRENT OPERATOR (Provide if different from owner)				OPERATOR'S PARENT COMPANY (If applicable)	
01 NAME Same as Owner		02 D+B NUMBER		11 D+B NUMBER	
03 STREET ADDRESS (P.O. BOX, RFD #, ETC.)		04 SIC CODE		12 STREET ADDRESS (P.O. BOX, RFD #, ETC.)	
05 CITY		06 STATE		13 SIC CODE	
07 ZIP CODE		14 CITY		15 STATE	
08 YEARS OF OPERATION		16 ZIP CODE		09 NAME OF OWNER	
III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)				PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)	
01 NAME		02 D+B NUMBER		11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.)	
05 CITY		06 STATE		13 SIC CODE	
07 ZIP CODE		14 CITY		15 STATE	
08 YEARS OF OPERATION		16 ZIP CODE		09 NAME OF OWNER DURING THIS PERIOD	
01 NAME		02 D+B NUMBER		11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.)	
05 CITY		06 STATE		13 SIC CODE	
07 ZIP CODE		14 CITY		15 STATE	
08 YEARS OF OPERATION		16 ZIP CODE		09 NAME OF OWNER DURING THIS PERIOD	
01 NAME		02 D+B NUMBER		11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.)	
05 CITY		06 STATE		13 SIC CODE	
07 ZIP CODE		14 CITY		15 STATE	
08 YEARS OF OPERATION		16 ZIP CODE		09 NAME OF OWNER DURING THIS PERIOD	
IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)					

EPA

POTENTIAL HAZARDOUS WASTE SITE

SITE INSPECTION REPORT

PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION

01 STATE 02 SITE NUMBER
MT D980955702

II. ON-SITE GENERATOR

01 NAME None Present	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE 07 ZIP CODE

III. OFF-SITE GENERATOR(S)

01 NAME Rocky Mountain Laboratories	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.) 103 4th Street	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY Hamilton	06 STATE MT	07 ZIP CODE 59840	05 CITY 06 STATE 07 ZIP CODE
01 NAME Ribi Immunochem	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.) P.O. Box 1409	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY Hamilton	06 STATE MT	07 ZIP CODE 59840	05 CITY 06 STATE 07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE 07 ZIP CODE	05 CITY 06 STATE 07 ZIP CODE	
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE 07 ZIP CODE	05 CITY 06 STATE 07 ZIP CODE	

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Ecology and Environment, Inc., June 1990, Listing Site Inspection Work Plan for the Bitterroot Valley Sanitary Landfill, Victor, Montana.

EPA

POTENTIAL HAZARDOUS WASTE SITE

SITE INSPECTION REPORT

PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE 02 SITE NUMBER
MT D980955702

II. PAST RESPONSE ACTIVITIES

01	X A. WATER SUPPLY CLOSED	02 DATE	03 AGENCY
04	DESCRIPTION Drinking from the Precut Homes domestic well was curtailed after analysis revealed elevated levels of chloroform in the water. Mr. Charles Mann is currently providing bottled water for the Precut Homes employees.		
01	X B. TEMPORARY WATER SUPPLY PROVIDED	02 DATE	03 AGENCY
04	DESCRIPTION See Item A.		
01	C. PERMANENT WATER SUPPLY PROVIDED	02 DATE	03 AGENCY
04	DESCRIPTION None noted or observed.		
01	D. SPILLED MATERIAL REMOVED	02 DATE	03 AGENCY
04	DESCRIPTION None noted or observed.		
01	E. CONTAMINATED SOIL REMOVED	02 DATE	03 AGENCY
04	DESCRIPTION None noted or observed.		
01	F. WASTE REPACKAGED	02 DATE	03 AGENCY
04	DESCRIPTION None noted or observed.		
01	G. WASTE DISPOSED ELSEWHERE	02 DATE	03 AGENCY
04	DESCRIPTION None noted or observed.		
01	H. ON SITE BURIAL	02 DATE	03 AGENCY
04	DESCRIPTION Liquid laboratory wastes were deposited in an approximate 10 foot deep by 15 foot long by 5 foot wide disposal pit onsite.		
01	X I. IN SITU CHEMICAL TREATMENT	02 DATE	03 AGENCY
04	DESCRIPTION Water pumped from onsite well (sample BR-GW-2) is treated with an activated charcoal filter to remove volatile organic compounds.		
01	J. IN SITU BIOLOGICAL TREATMENT	02 DATE	03 AGENCY
04	DESCRIPTION None reported or observed.		
01	K. IN SITU PHYSICAL TREATMENT	02 DATE	03 AGENCY
04	DESCRIPTION None reported or observed.		
01	L. ENCAPSULATION	02 DATE	03 AGENCY
04	DESCRIPTION None reported or observed.		
01	M. EMERGENCY WASTE TREATMENT	02 DATE	03 AGENCY
04	DESCRIPTION None reported or observed.		
01	N. CUTOFF WALLS	02 DATE	03 AGENCY
04	DESCRIPTION None reported or observed.		
01	O. EMERGENCY DIKING/SURFACE WATER DIVERSION	02 DATE	03 AGENCY
04	DESCRIPTION None reported or observed.		
01	P. CUTOFF TRENCHES/SUMP	02 DATE	03 AGENCY
04	DESCRIPTION None reported or observed.		
01	Q. SUBSURFACE CUTOFF WALL	02 DATE	03 AGENCY
04	DESCRIPTION None reported or observed.		

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE 02 SITE NUMBER
MT D980955702

II. PAST RESPONSE ACTIVITIES (Continued)

1 A. BARRIER WALLS CONSTRUCTED 02 DATE 03 AGENCY

04 DESCRIPTION
None reported or observed.

1 S. CAPPING/COVERING 02 DATE 03 AGENCY

04 DESCRIPTION
Municipal waste is currently contained by bailing the refuse and covering these bails with an approximate three foot layer of natural soils.

1 T. BULK TANKAGE REPAIRED 02 DATE 03 AGENCY

04 DESCRIPTION
None reported or observed.

1 U. GROUT CURTAIN CONSTRUCTED 02 DATE 03 AGENCY

04 DESCRIPTION
None reported or observed.

1 V. BOTTOM SEALED 02 DATE 03 AGENCY

04 DESCRIPTION
None reported or observed.

1 W. GAS CONTROL 02 DATE 03 AGENCY

04 DESCRIPTION
None reported or observed.

01 X. FIRE CONTROL 02 DATE 03 AGENCY

04 DESCRIPTION
None reported or observed.

01 Y. LEACHATE TREATMENT 02 DATE 03 AGENCY

04 DESCRIPTION
None reported or observed.

01 Z. AREA EVACUATED 02 DATE 03 AGENCY

04 DESCRIPTION
None reported or observed.

01 1. ACCESS TO SITE RESTRICTED 02 DATE 03 AGENCY

04 DESCRIPTION
The site is enclosed by a three-strand barbed wire fence and trucks transporting materials to the landfill are inventoried by a guard present at the landfill entrance.

1 2. POPULATION RELOCATED 02 DATE 03 AGENCY

04 DESCRIPTION
None reported or observed.

1 3. OTHER REMEDIAL ACTIVITIES 02 DATE 03 AGENCY

04 DESCRIPTION
None reported or observed.

7. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Ecology and Environment, Inc., August 21 through 25, 1990, Listing Site Inspection.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION

01 STATE MT	02 SITE NUMBER D980955702
----------------	------------------------------

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☐ YES ☒ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

APPENDIX D

WASTE QUANTITY INFORMATION





THE GREAT SEAL OF THE STATE OF MONTANA
TED SCHWINDEN GOVERNOR

STATE OF MONTANA

(406) 449-2821

COSGARELL BUILDING ROOM 14201

HELENA MONTANA 59620

Rocky Mountain Laboratories Hazardous Waste
Disposal 31 October 1984

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Dear Mr. Mann:

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Robert K. Bergman
Robert K. Bergman, Operations Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

There are a few types of wastes that, because of their higher hazard, are prohibited from landfill disposal in amounts over 1 Kg (2.2 pounds) per month. You should refer to 40 CFR 261.33 (e) in the enclosed regulations for a list of these wastes. You should ask that Mr. Steiner provide you with an inventory of the hazardous wastes in each load brought to the landfill or, as an alternative, an assurance from him that he has reviewed the wastes against the appropriate lists and found the waste quantities to be within the pertinent quantity limitations.

I realize that this is a complex and difficult set of regulations, and our office will be available to assist you with any questions you may have. The development of a working agreement with the Rocky Mountain Laboratory, so that you know what to expect in the way of chemical wastes from them, should make your acceptance of their waste loads much easier.

Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RML Hazardous Wastes Sent To Victor Land Fill 10/31/84

EPA waste No. and Name	gm/liter	Sp. grav	Qty (l)	Haz Constit (gm)	Waste (kg)
D001 Ethanol	798.000	0.798	1.000	798.00	0.80
			Total:	798.00	0.80
D001 Methanol	792.000	0.792	0.004	3.17	0.00
			Total:	3.17	0.00
D002 Hydrochloric acid	1,190.000	1.190	0.005	5.95	0.01
			Total:	5.95	0.01
D002 Trifluoroacetic acid	1,480.000	1.480	0.002	2.96	0.00
			Total:	2.96	0.00
D011 Silver salts (approx 5.62 gm Ag/l)	5.620	1.000	17.462	98.14	17.46
D011 Silver salts (approx 3.175 gm/l)	3.175	1.000	1.100	3.49	1.10
			Total:	101.63	18.56
P105 Sodium azide	0.500	1.000	5.000	2.50	5.00
			Total:	2.50	5.00
U002 Acetone	788.000	0.788	0.585	460.98	0.46
	788.000	0.788	0.310	244.28	0.24
	788.000	0.788	0.300	236.40	0.24
	788.000	0.788	0.100	78.80	0.08
			Total:	1,020.46	1.02
U003 Acetonitrile	787.000	0.787	2.700	2,124.90	2.12
	787.000	0.787	0.004	3.15	0.00
			Total:	2,128.05	2.12
U007 Acrylamide	1,000.000	1.000	0.018	18.00	0.02
			Total:	18.00	0.02
U019 Benzene	879.000	0.879	0.010	8.79	0.01
			Total:	8.79	0.01
U117 Ethyl ether	713.000	0.713	0.010	7.13	0.01

recycled paper

ecology and environment

RML Hazardous Wastes Sent To Victor Land Fill 10/31/84

<u>EPA waste No. and Name</u>	<u>gm/liter</u>	<u>Sp. grav</u>	<u>Qty (l)</u>	<u>Haz Constit (gm)</u>	<u>Waste (kg)</u>
			Total:	7.13	0.01
U196 Pyridine	978.000	0.978	0.150	146.70	0.15
			Total:	146.70	0.15
U239 Iylene	866.000	0.866	0.300	259.80	0.26
			Total:	259.80	0.26
			Total:	4,503.14	27.96

RIBI IMMUNOCHEM RESEARCH, INC.

DATE

11-5-84

SOLVENT WASTE DISPOSAL

GALLONS

Waste Since Sept 5, 84

ALCOHOL 5

ACETONE 5


CHLOROFORM 20

ETHER 1

METHANOL 1

MISCELLANEOUS 2

SIGNATURE



RIR8408

RIBI IMMUNOCHEM RESEARCH, INC.

DATE

14 NOV 84

SOLVENT WASTE DISPOSAL

Waste Since Jan 1, 84

GALLONS

ALCOHOL 22.3

ACETONE 17.36

CHLOROFORM .59

ETHER .11

METHANOL 1.4

MISCELLANEOUS 12.45

SIGNATURE



RIR8408



TED SCHWIDEN GOVERNOR

COWLEY BUILDING ROOM 201

STATE OF MONTANA

(406) 449-2821

HELENA MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Dear Mr. Mann:

Rocky Mountain Laboratories Hazardous Waste
Disposal
30 Mar 1984

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Robert K. Bergman
Robert K. Bergman, Operations Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

There are a few types of wastes that, because of their higher hazard, are prohibited from landfill disposal in amounts over 1 Kg (2.2 pounds) per month. You should refer to 40 CFR 261.33 (e) in the enclosed regulations for a list of these wastes. You should ask that Mr. Steiner provide you with an inventory of the hazardous wastes in each load brought to the landfill or, as an alternative, an assurance from him that he has reviewed the wastes against the appropriate lists and found the waste quantities to be within the pertinent quantity limitations.

I realize that this is a complex and difficult set of regulations, and our office will be available to assist you with any questions you may have. The development of a working agreement with the Rocky Mountain Laboratory, so that you know what to expect in the way of chemical wastes from them, should make your acceptance of their waste loads much easier.

Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Waste from Rocky Mountain Laboratories
Delivered to Victor Land Fill on 30 March 1984

		Hazardous Constituent (kg)	Waste (kg)
D001	Ethanol 1.150 X .798	.918	.918
D011	Silver salts in solution (approx. 5.62 gm Ag/Liter)	.042	7.500
U002	Acetone 1.000 X .788	.788	.788
U003	Acetonitrile 4.050 X .787	3.187	3.187
U044	Chloroform .082 X 1.484	.122	.122
U177	Ethyl Ether 1.410 X .713	1.005	1.005
U122	4% Formaldehyde in solution	.151	3.500
U188	Phenol	3.008	6.876
U196	Pyridine .225 X .978	.220	.220
U239	Xylenes 3.500 X .866	3.031	3.031
		<hr/>	<hr/>
	Total	12.472	27.147



TED SCHWINDEN GOVERNOR

COGSWELL BUILDING ROOM 4201

STATE OF MONTANA

(406) 449-2821

HELENA, MONTANA 59620

Rocky Mountain Laboratories Hazardous Waste
Disposal

27 Apr 1984

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Dear Mr. Mann:

Robert K. Bergman
Robert K. Bergman, Operations Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 lbs (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

There are a few types of wastes that, because of their higher hazard, are prohibited from landfill disposal in amounts over 1 Kg (2.2 pounds) per month. You should refer to 40 CFR 261.33 (e) in the enclosed regulations for a list of these wastes. You should ask that Mr. Steiner provide you with an inventory of the hazardous wastes in each load brought to the landfill or, as an alternative, an assurance from him that he has reviewed the wastes against the appropriate lists and found the waste quantities to be within the pertinent quantity limitations.

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Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

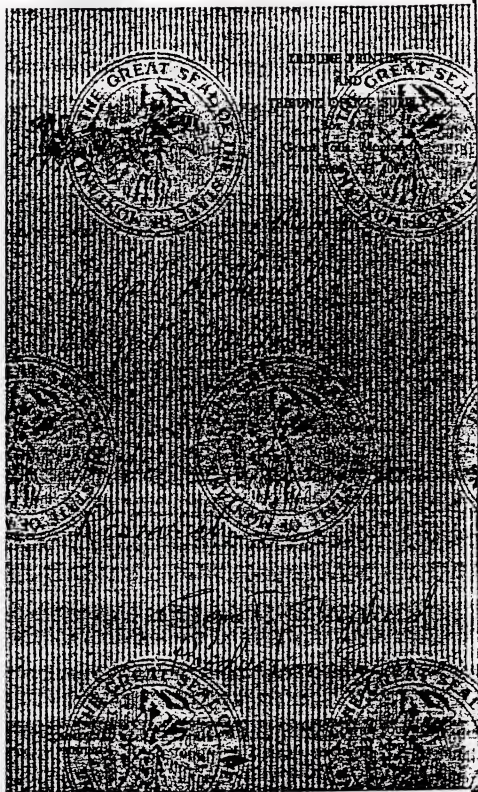
RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Waste from Rocky Mountain Laboratories
Delivered to Victor Land Fill on 27 April 1984

		Hazardous Constituent (kg)	Waste (kg)
D001	Ethanol 1.850 X .798	1.476	1.476
D011	Silver salts in solution (approx. 5.62 g Ag / liter)	.070	12.463
U002	Acetone .500 X .788	.394	.394
U003	Acetonitrile 4.500 X .787	3.542	3.542
U044	Chloroform .010 X 1.484	.015	.015
U057	Cyclohexanone .05 X .948	.047	.047
U117	Ethyl ether 3.0 X .713	2.139	2.139
U122	4% Formaldehyde in solution	.359	8.300
U188	Phenol in solution	.013	7.237
U196	Pyridine .250 X .978	.245	.245
U220	Toluene .250 X .866	.217	.217
U239	Xylenes .600 X .866	.520	.520
Total		9.037	36.595





TED SCHWENEN GOVERNOR

COWSLEY BUILDING ROOM 4201

STATE OF MONTANA

(406) 449-2821

HELENA, MONTANA 59620

Rocky Mountain Laboratories Hazardous Waste Disposal

31 May 1984

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Dear Mr. Mann:

Robert K. Bergman
Robert K. Bergman, Operations Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

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Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Wastes from Rocky Mountain Laboratories
Delivered to Victor Land Fill on 31 May 1984

		Hazardous Constituent (kg)	Waste (kg)
D001	Ethanol 1.200 X .798	.958	.958
D011	Silver salts in solution (approx. 5.62 gm Ag / Liter)	.124	22.140
P087	Osmium Tetroxide (mixed with excess of organic matter for inactivation)	.002	.002
U002	Acetone .430 X .788	.339	.339
U003	Acetonitrile .900 X .787	.708	.708
U044	Chloroform .044 X 1.484	.065	.065
U122	4% Formaldehyde in solution	.242	5.600
U188	Phenol in solution	.059	5.504
U196	Pyridine .050 X .978	.049	.049
U239	Xylenes 1.500 X .866	1.299	1.299
		<hr/>	<hr/>
	Total	3.845	36.664

RCRA Hazardous Wastes from Rocky Mountain Laboratories
Delivered to Victor Land Fill on 29 June 1984

		Hazardous Constituent (kg)	Waste (kg)
D001	Butanol .197 X .810	.160	.160
D001	Ethanol 1.430 X .798	1.141	1.141
D001	Methanol 1.500 X .792	1.188	1.188
D002	Acetic acid 1.175 X 1.049	1.233	1.233
D004	Arsenic salts in solution	.014	1.500
D011	Silver salts in solution (approx 5.62 gm Ag/ liter)	.183	32.549
P087	Osmium tetroxide (mixed with excess of organic matter for inactivation)	.001	.001
U002	Acetone .250 X .788	.197	.197
U003	Acetonitrile 3.420 X .787	2.692	2.692
U044	Chloroform .154 X 1.484	.229	.229
U052	Cresols	.001	.001
U122	Formaldehyde in solution	1.730	9.800
U188	Phenol in solution	.405	7.696
U196	Pyridine .342 X .978	.334	.334
U239	Xylenes 1.000 X .866	.866	.866
Total		10.374	59.517



TED SCHWINDEN GOVERNOR

COGSWELL BUILDING ROOM 4201

STATE OF MONTANA

14061449-2821

HELENA MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Rocky Mountain Laboratories Hazardous Waste
Disposal

31 July 1984

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Dear Mr. Mann:

Robert K. Bergman
Robert K. Bergman, Operations Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

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Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Wastes from Rocky Mountain Laboratories
Delivered to Victor Land Fill on 31 July 1984

		Hazardous Constituent (kg)	Waste (kg)
D001	Ethanol .800 X .798	.640	.640
D001	Methanol 2.700 X .792	2.140	2.140
D009	Mercury salts in solution (18.47 gm Hg / Liter)	.037	2.000
D011	Silver salts in solution (approx. 5.50 gm Ag / Liter)	.069	12.600
U002	Acetone .100 X .788	.079	.079
U044	Chloroform .020 X 1.484	.030	.030
U122	4% Formaldehyde in solution	.251	5.800
U188	Phenol	.060	.060
U220	Toluene .500 X .866	.433	.433
Total		3.739	23.782



TED SCHWINDEN GOVERNOR

CORKWELL BUILDING ROOM 4201

STATE OF MONTANA

(406) 449-2821

HELENA, MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Dear Mr. Mann:

Rocky Mountain Laboratories Hazardous Waste
Disposal
30 August 1984

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Robert K. Bergman
Robert K. Bergman, Operations Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

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Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Wastes from Rocky Mountain Laboratories
Delivered to Victor Land Fill on 30 August 1984

		Hazardous Constituent (kg)	Waste (kg)
D001	Ethanol .800 X .798	.638	.638
D001	Butanol .100 X .810	.081	.081
D011	Silver salts in solution (approx. 5.62 gm Ag/Liter)	.136	24.140
U002	Acetone 1.860 X .788	1.466	1.466
U003	Acetonitrile 2.000 X .787	1.574	1.574
U044	Chloroform 2.500 X 1.484	3.710	3.710
U188	Phenol	.401	4.014
U196	Pyridine 1.000 X .978	.978	.978
U220	Toluene .250 X .866	.217	.217
U239	Xylenes .600 X .866	.520	.520
Total		9.721	37.338

RIBI IMMUNOCHEM RESEARCH, INC.

DATE _____

SOLVENT WASTE DISPOSAL

GALLONS

ALCOHOL 1.5

ACETONE 2

CHLOROFORM 5.7

ETHER 1

METHANOL 2.2

MISCELLANEOUS _____

SIGNATURE Sign. F. Skopinski

RIR8408

RIBI IMMUNOCHEM RESEARCH, INC.

DATE 9-7-84

SOLVENT WASTE DISPOSAL

GALLONS

ALCOHOL 3

ACETONE 4

CHLOROFORM 34

ETHER 1/2

METHANOL 8

MISCELLANEOUS 1/2

SIGNATURE John Peterson



TED SCHWINDEN GOVERNOR

COGFAELL BUILDING ROOM A201

STATE OF MONTANA

(406) 449-2821

HELENA MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Rocky Mountain Laboratories Hazardous Waste
Disposal 25 September 1984

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Dear Mr. Mann:

Robert K. Bergman
Robert K. Bergman, Operations Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

There are a few types of wastes that, because of their higher hazard, are prohibited from landfill disposal in amounts over 1 Kg (2.2 pounds) per month. You should refer to 40 CFR 261.33 (e) in the enclosed regulations for a list of these wastes. You should ask that Mr. Steiner provide you with an inventory of the hazardous wastes in each load brought to the landfill or, as an alternative, an assurance from him that he has reviewed the wastes against the appropriate lists and found the waste quantities to be within the pertinent quantity limitations.

I realize that this is a complex and difficult set of regulations, and our office will be available to assist you with any questions you may have. The development of a working agreement with the Rocky Mountain Laboratory, so that you know what to expect in the way of chemical wastes from them, should make your acceptance of their waste loads much easier.

Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Wastes from Rocky Mountain Laboratories
Delivered to Victor Land Fill on 25 September 1984

		Hazardous Constituent (kg)	Waste (kg)
D001	Ethanol .920 X .798	.734	.734
D011	Silver salts in solution (approx 5.62 gm Ag/Liter)	.016	2.900
U002	Acetone .470 X .788	.370	.370
U003	Acetonitrile 8.964 X .787	7.055	7.055
U122	4% Formaldehyde in solution	.190	4.400
U188	Phenol	.029	2.080
U196	Pyridine .486 X .978	.475	.475
D004	Arsenic salts in solution (approx 7.5 gm As salt/Liter)	.015	2.000
P087	Osmium Tetroxide (mixed with excess of organic matter for inactivation)	.002	.002
Total		8.886	20.016



TED SCHWINDEN GOVERNOR

205 WALL BUILDING ROOM 4201

STATE OF MONTANA

(406) 449-2821

HELENA MONTANA 59620

Rocky Mountain Laboratories Hazardous Waste
Disposal 30 November 1984

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

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Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RML Hazardous Waste Sent to Victor Land Fill 11/30/84

EPA waste No. and Name	gm/liter	Sp. grav	Qty (l)	Haz Constit (gm)	Waste (kg)
D001 Ethanol	798.0	0.798	0.300	239.40	0.24
	798.0	0.798	0.600	478.80	0.48
			Total:	718.20	0.72
D002 Acetic acid	1,049.0	1.049	0.100	104.90	0.10
			Total:	104.90	0.10
D004 Arsenic salts in soln (approx 7.5 gm As salt/L)	7.5	1.000	0.450	3.38	0.45
			Total:	3.38	0.45
P087 Osmium tetroxide (mixed w/excess organic matter to inact)	1.0		0.450	0.45	
			Total:	0.45	0.00
U002 Acetone	788.0	0.788	1.000	788.00	0.79
	788.0	0.788	0.400	315.20	0.32
	788.0	0.788	0.300	236.40	0.24
			Total:	1,339.60	1.35
U003 Acetonitrile	787.0	0.787	2.700	2,124.90	2.12
			Total:	2,124.90	2.12
U044 Chloroform	1,484.0	1.484	0.012	17.81	0.02
			Total:	17.81	0.02
U122 4% Formaldehyde in soln	43.0	1.000	11.800	507.40	11.80
			Total:	507.40	11.80
U188 Phenol	1.0	1.000	0.006	0.01	0.01
			Total:	0.01	0.01
U196 Pyridine	978.0	0.978	0.150	146.70	0.15
			Total:	146.70	0.15
U239 Xylene	866.0	0.866	0.300	259.80	0.26

RML Hazardous Waste Sent to Victor Land Fill 11/20/84

EPA waste No. and Name	gm/liter	Sp. grav	Qty (l)	Haz Constit (gm)	Waste (lg)
			Total:	259.80	0.26
			Total:	5,223.15	16.98



STATE OF MONTANA

(406) 449-2821

HELENA MONTANA 59620

Rocky Mountain Laboratories Hazardous Waste Disposal
27 December 1984

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Robert K. Bergman
Robert K. Bergman, Operations Branch

Dear Mr. Mann:

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Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:CW

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RML Hazardous Waste Sent to Victor Land Fill 12/27/84

EPA waste No. and Name	gm/liter	Sp. grav	Qty (l)	Haz Constit (gm)	Waste (kg)
D001 Ethanol	798.0	0.7980	1.690	1,348.62	1.35
			Total:	1,348.62	1.35
D001 Isoamyl alcohol	813.0	0.8130	0.001	0.81	0.00
			Total:	0.81	0.00
D004 Arsenic salts in soln (approx 7.5 gm As salt/L)	7.5	1.0000	2.750	20.63	2.75
			Total:	20.63	2.75
K009 Methylene chloride	1,325.5	1.3255	0.200	265.10	0.27
			Total:	265.10	0.27
P087 Osmium tetroxide (mixed w/excess organic matter to inert)	1.0		2.750	2.75	
			Total:	2.75	0.00
U002 Acetone	788.0	0.7880	2.189	1,724.93	1.72
			Total:	1,724.93	1.72
U003 Acetonitrile	787.0	0.7870	6.300	4,958.10	4.96
			Total:	4,958.10	4.96
U044 Chloroform	1,484.0	1.4840	0.013	19.29	0.02
			Total:	19.29	0.02
U122 Formaldehyde soln	1,081.0	1.0810	0.045	48.65	0.05
			Total:	48.65	0.05
U122 4% Formaldehyde in solution	43.0	1.0000	8.800	378.40	8.80
			Total:	378.40	8.80
U188 Phenol	1.0	1.0000	0.016	0.02	0.02
			Total:	0.02	0.02
U196 Pyridine	978.0	0.9780	0.350	342.30	0.34

RML Hazardous Waste Sent to Victor Land Fill 12/27/84

EPA waste No. and Name	gm/liter	Sp. grav	Qty (l)	Haz Constit (gm)	Waste (kg)
			Total:	342.30	0.34
U239 Xylene	866.0	0.8660	2.300	1,991.80	1.99
			Total:	1,991.80	1.99
			Total:	11,101.40	22.27

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN GOVERNOR

COGUEWELL BUILDING ROOM 4201

STATE OF MONTANA

(406) 449-2821

HELENA MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Dear Mr. Mann:

Rocky Mountain Laboratories Hazardous Waste
Disposal

28 February, 1985

The hazardous wastes listed on the attached
inventory have been reviewed against the
appropriate lists in 40 CFR 261 and are
within the pertinent quantity limitations
of a Small Quantity Generator.

Robert K. Bergman
Robert K. Bergman, Operations Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

There are a few types of wastes that, because of their higher hazard, are prohibited from landfill disposal in amounts over 1 Kg (2.2 pounds) per month. You should refer to 40 CFR 261.33 (e) in the enclosed regulations for a list of these wastes. You should ask that Mr. Steiner provide you with an inventory of the hazardous wastes in each load brought to the landfill or, as an alternative, an assurance from him that he has reviewed the wastes against the appropriate lists and found the waste quantities to be within the pertinent quantity limitations.

I realize that this is a complex and difficult set of regulations, and our office will be available to assist you with any questions you may have. The development of a working agreement with the Rocky Mountain Laboratory, so that you know what to expect in the way of chemical wastes from them, should make your acceptance of their waste loads much easier.

Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RML Hazardous Wastes Sent To Victor Land Fill 2/28/85

EPA waste No. and Name	ga/liter	Sp. grav	Qty (l)	Haz Constit (ga)	Waste (kg)
D001 Ethanol	798.0000	0.798	0.665	530.67	0.53
			Total:	530.67	0.53
D001 Petroleum Ether	650.0000	0.650	0.740	481.00	0.48
			Total:	481.00	0.48
D004 Arsenic salts in soln (approx 7.5 ga As salt/L)	7.5000	1.000	1.300	9.75	1.30
			Total:	9.75	1.30
P087 Osmium tetroxide (mixed w/excess organic matter to inert)	1.0000		1.300	1.30	
			Total:	1.30	0.00
P105 Sodium Azide	0.0001	1.000	1.100	0.00	1.10
			Total:	0.00	1.10
U002 Acetone	788.0000	0.788	2.410	1,899.08	1.90
			Total:	1,899.08	1.90
U003 Acetonitrile	787.0000	0.787	3.890	3,061.43	3.06
			Total:	3,061.43	3.06
U044 Chloroform	1,484.0000	1.484	0.830	1,231.72	1.23
			Total:	1,231.72	1.23
U117 Ethyl Ether	713.0000	0.713	0.740	527.62	0.53
			Total:	527.62	0.53
U122 41 Formaldehyde in solution	43.0000	1.000	8.100	348.30	8.10
			Total:	348.30	8.10
U188 Phenol	1.0000	1.000	0.200	0.20	0.20
	1.0000	1.000	1.330	1.33	1.33
	0.0330	1.000	0.450	0.01	0.45
			Total:	1.54	1.98
U196 Pyridine	978.0000	0.978	0.168	164.30	0.16

RML Hazardous Wastes Sent To Victor Land Fill 2/29/85

EPA waste No. and Name	gm/liter	Sp. grav	Qty (l)	Haz Constit (gm)	Waste (kg)
			Total:	164.30	0.16
U220 Toluene	866.0000	0.866	0.020	17.32	0.02
			Total:	17.32	0.02
U239 Xylene	866.0000	0.866	0.500	433.00	0.43
			Total:	433.00	0.43
			Total:	8,707.03	20.82



TED SCHWINDEN GOVERNOR

COGSWELL BUILDING ROOM 4201

STATE OF MONTANA

(406) 449-2821

HELENA MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Dear Mr. Mann:

Rocky Mountain Laboratories Hazardous Waste
Disposal
31 January 1985

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Robert K. Bergman
Robert K. Bergman, Operations Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

There are a few types of wastes that, because of their higher hazard, are prohibited from landfill disposal in amounts over 1 Kg (2.2 pounds) per month. You should refer to 40 CFR 261.33 (e) in the enclosed regulations for a list of these wastes. You should ask that Mr. Steiner provide you with an inventory of the hazardous wastes in each load brought to the landfill or, as an alternative, an assurance from him that he has reviewed the wastes against the appropriate lists and found the waste quantities to be within the pertinent quantity limitations.

I realize that this is a complex and difficult set of regulations, and our office will be available to assist you with any questions you may have. The development of a working agreement with the Rocky Mountain Laboratory, so that you know what to expect in the way of chemical wastes from them, should make your acceptance of their waste loads much easier.

Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:CW

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

"AN EQUAL OPPORTUNITY EMPLOYER"

recycled paper

ecology and environment

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN GOVERNOR

COGSWELL BUILDING ROOM 4201

STATE OF MONTANA

(406) 449-2821

HELENA MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Rocky Mountain Laboratories Hazardous Waste
Disposal 3/31/82

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Robert K. Bergman

Dear Mr. Mann:

Robert K. Bergman, Operations Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

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Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Wastes from Rocky Mountain Labs
Delivered to Victor Land Fill on April 30, 1982

P087	Osmium tetroxide (mixed with excess of organic material for inactivation)		.002 kg
U002	Acetone	1.150 liters X .787	.905 kg
U044	Chloroform	.065 liters X 1.484	.096 kg
U122	Formaldehyde	1.228 liters X 1.081	1.327 kg
U188	Phenol		1.065kg
U196	Pyridine	2.080 liters x .978	1.034kg
U220	Toluene	3.200 liters x .866	2.771kg
U239	Xylene	7.100 liters x .866	6.106kg
	Silver Compounds	NCS	<u>.064kg</u>
		Total	14.370kg

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN, GOVERNOR

STATE OF MONTANA

(406) 449-2821

COGSWELL BUILDING ROOM A201

HELENA MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Dear Mr. Mann:

Rocky Mountain Laboratories Hazardous Waste
Disposal 4/30/82

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Robert K. Bergman
Robert K. Bergman, Operations
Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

There are a few types of wastes that, because of their higher hazard, are prohibited from landfill disposal in amounts over 1 Kg (2.2 pounds) per month. You should refer to 40 CFR 261.33 (e) in the enclosed regulations for a list of these wastes. You should ask that Mr. Steiner provide you with an inventory of the hazardous wastes in each load brought to the landfill or, as an alternative, an assurance from him that he has reviewed the wastes against the appropriate lists and found the waste quantities to be within the pertinent quantity limitations.

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Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:CW

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Wastes from Rocky Mountain Labs
Delivered to Victor Land Fill on April 30, 1982

PO87	Osmium tetroxide (mixed with excess of organic material for inactivation)		.002 kg
U002	Acetone	1.150 liters X .787	.905 kg
U044	Chloroform	.065 liters X 1.484	.096 kg
U122	Formaldehyde	1.228 liters X 1.081	1.327 kg
U188	Phenol		1.065kg
U196	Pyridine	2.080 liters x .978	1.034kg
U220	Toluene	3.200 liters x .866	2.771kg
U239	Xylene	7.100 liters x .866	6.106kg
	Silver Compounds	NOS	<u>.064kg</u>
		Total	14.370kg

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN GOVERNOR

COGSWELL BUILDING ROOM A201

STATE OF MONTANA

(406) 449-2821

Rocky Mountain Laboratories Hazardous Waste Disposal

HELENA MONTANA 59620

June 12, 1981

December 23, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40CFR 261 and are within the pertinent quantity limitations for a Small Quantity Generator.

Dear Mr. Mann:

Robert K. Bergman
Robert K. Bergman
Operations Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

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Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Wastes from Rocky Mountain Laboratories
Delivered to Victor Land Fill on February 25, 1982

Chemical	Quantity	Weight
Cyanogen Bromide	1.600 liters X .797	1.261 kg
Acetone		.020 kg
Acrylamide	2.030 liters X 1.484	3.013 kg
Chloroform		.300 kg
Formaldehyde	.400 liters X 1.081	3.013 kg
Phenol		.432 kg
Pyridine	.208 liters X .978	.400 kg
Silver Compounds	NOS	.203 kg
		.064 kg
Total		5.533 kg

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN GOVERNOR

COGSWELL BUILDING, ROOM A201

STATE OF MONTANA

(406) 449-2821

HELENA, MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Dear Mr. Mann:

Rocky Mountain Laboratories Hazardous Waste
Disposal 2/25/82

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations for a Small Quantity Generator.

Robert C. Bergman
Robert C. Bergman, Operations Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

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I realize that this is a complex and difficult set of regulations, and our office will be available to assist you with any questions you may have. The development of a working agreement with the Rocky Mountain Laboratory, so that you know what to expect in the way of chemical wastes from them, should make your acceptance of their waste loads much easier.

Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Wastes from Rocky Mountain Labs
Delivered to Victor Land Fill on March 31, 1982

P087	Osmium tetroxide (mixed with excess of organic material for inactivation)	.002 kg
U002	Acetone 3.146 liters X .788	2.479 kg
U044	Chloroform .063 liters X 1.484	.093 kg
U122	Formaldehyde .388 liters X 1.081	.420 kg
U151	Mercury	.014 kg
U188	Phenol	.050 kg
U239	Xylene 9.03 liters X .86	7.766 kg
	Mercury compounds <u>NOS</u>	.080 kg
	Silver compounds <u>NOS</u>	<u>.064 kg</u>
	Total	10.968 kg

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN, GOVERNOR

COGSWELL BUILDING, ROOM A201

STATE OF MONTANA

(406) 449-2821

HELENA, MONTANA 59620

June 12, 1981

Mr. Robert W. Steiner
Chief, Operations Branch
Rocky Mountain Laboratory
Hamilton, Montana 59840

Dear Mr. Steiner:

I have reviewed the list of wastes enclosed with your May 26, 1981 letter and have concluded that the disposal of these wastes at the Victor landfill on that date was fully in conformance with state law. I would like to comment on several points concerning the special requirements for small quantity hazardous wastes.

You don't mention the potential for generating acute hazardous wastes, but you should remember that any such wastes have an exclusion limit of only 1 Kg per month. Also, even though less than 1,000 Kg of non-acute hazardous wastes may be generated per month, they become subject to full hazardous waste regulation if allowed to accumulate to more than a 1,000 Kg before disposal. Sanitary landfill disposal must be accomplished at a frequency such that the applicable exclusion limits are never exceeded.

In evaluating any commercial chemical product waste, the total weight of the waste material is the deciding factor, not a computation of the relative amount of the pure product contained in a diluted waste material. For example the total weight of 10% formalin solution would be used in a waste calculation, not the amount by weight of the formaldehyde contained in the formalin.

I think it commendable that your organization is willing to develop a working agreement with the operator of the Victor Sanitary Landfill. You should inform him of anticipated hazardous waste types and quantities, frequency of disposal, types of containerization, and the amount of information you will provide on each waste load delivered. The landfill in turn should commit to a set procedure for safely handling your wastes upon receipt. Establishing a limit of 100 Kg per month is probably a good idea, as we may enact rules in the near future which will place some additional burden on generators who routinely dispose of from 100 Kg to 1,000 Kg per month of hazardous wastes. Also the EPA expects to lower their exclusion limit, probably to 100 Kg per month, in the next few years.

I am enclosing a copy of a letter which I have sent to Mr. Charles Mann. I hope that this correspondence meets both your needs in explaining our position on the use of sanitary landfills for small quantities of hazardous waste.

Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

Enclosures

cc: Charles Mann

"AN EQUAL OPPORTUNITY EMPLOYER"

RCT:cw

Don Mullin

10% Formalin

U122

17.500 liters X 1

17.5 kg

16.200 " X 1

16.2 kg

formaldehyde = 1.350 kg

Acetone

U032

2.700 liters

.788

2.0 kg

1.000 "

.788

.8 kg

Toluene

U220

11.606 "

.866

10.0 kg

Ammonium Thiosulfate

7

75.708 liters

1.1

83.3 kg

estimated that it contains 3/4 oz silver/gal

20 gal X .75 oz silver/gal = 15 oz = .425 kilos of silver

Aqueous flammable solvents

18 liters

.9

16.2 kg

0001

15.850 "

.9

14.3 kg

Chloroform

U044

2.400 "

1.484

3.6 kg

Aqueous Phenol

U188

.850

1

.8 kg

Aqueous Ether

U117

.254

1

.3 kg

165

49.8 kg without counting the water in the formalin solution waste from

Hadlow or the water in the hypo solution from Graphic Arts.

Disposed from Victor Sanitary Landfill

26 May 1981

#1	Toluene	4150	19 liters	.866	16.5 kg
	Ethylene Cl	4077	1 "	1.2569	1.3 kg
	Methylene Cl	4180	1 "	1.3255	1.3 kg
	Pyridine	4190	1 "	.9780	1.0 kg
	Acetone	4002	4 "	.788	3.2 kg
	Ethyl Acetate	4122	2 "	.902	1.8 kg
	Dioxane	4107	2 "	1.030	2.0 kg
	Cyclohexane	4056	.5	.7781	.4 kg
	Triethylamine	?	.5	.7255	.4 kg

#2	10% formalin	4122	14.9 liters	1.0	14.9 kg
			formaldehyde	=	.597 kg

#3	Toluene	4220	14.2 liters	.866	12.3 kg
	Xylene	4239	1.5 "	.86	1.3 kg

#4	Chloroform	4044	2.093	1.484	3.1 kg
	Cello-solve		9.624	.931	9.0 kg

#5	10% formalin	4122	17.8 liters	1.0	17.8 kg
			formaldehyde	=	.713 kg

#6	10% formalin	4122	14.5 liters	1.0	14.5 kg
			formaldehyde	=	.581 kg

100.8 kg

55.5 kg without counting the water in the
formalin solution waste from Hadlow

Disposed in Victor Sanitary Land Fill 26 May 1981

RML Hazardous Waste Sent Victor Land Fill 1/31/85

EPA waste No. and Name	gm/liter	Sp. grav	Qty (l)	Haz Constit (gm)	Waste (kg)
D001 Ethanol	798.0	0.7980	1.120	893.76	0.89
			Total:	893.76	0.89
D004 Arsenic salts in soln (approx 26 gm As salt/L)	26.0	1.0000	1.200	31.20	1.20
			Total:	31.20	1.20
K009 Methylene chloride	325.5	0.3255	0.250	81.38	0.08
			Total:	81.38	0.08
U002 Acetone	788.0	0.7880	1.450	1,142.60	1.14
			Total:	1,142.60	1.14
U003 Acetonitrile	787.0	0.7870	4.860	3,824.82	3.82
			Total:	3,824.82	3.82
U044 Chloroform	1,484.0	1.4840	0.076	112.78	0.11
			Total:	112.78	0.11
U117 Ethyl ether	713.0	0.7130	0.004	2.85	0.00
			Total:	2.85	0.00
U122 4% Formaldehyde in solution	43.0	1.0000	4.500	193.50	4.50
			Total:	193.50	4.50
U188 Phenol	1.0	1.0000	0.080	0.08	0.08
			Total:	0.08	0.08
U196 Pyridine	978.0	0.9780	0.131	128.12	0.13
			Total:	128.12	0.13
			Total:	6,411.09	11.95

RML Hazardous Wastes Sent to Victor Landfill 3/22/85

HA Waste No.	Name	gm/liter	Sp. grav.	Qty (L)	Haz constit (gm)	Waste (kg)
D001	Ethanol	798.00	0.798	0.750	598.5	0.60
U004	Arsenic salts in soln (approx 7.5 gm as salt/L	7.5000	1.00	0.430	3.23	0.430
U087	Osmium tetroxide (mixed w/excess organic matter to inact)	1.000		0.430	0.430	
U117	Ethyl Ether	713.000	0.713	0.100	71.3	0.071
U002	Acetone	788.000	0.788	1.500	1,182.00	1.18
U220	Xylene	866.000	0.866	0.300	259.8	0.260
U031	Butanol	810.000	0.810	0.100	81.0	0.081
U0	Chloroform	1,484.0	1.484	2.250	3,339.00	3.340
U220	Toluene	866.000	0.866	0.250	216.5	0.217
U122	4% Formaldehyde in solution	43.0000	1.000	4.100	176.3	4.100
Total					5,711.56	10.28

RIBI IMMUNOCHEM RESEARCH, INC.

DATE 3-12-85

SOLVENT WASTE DISPOSAL

	GALLONS	
ALCOHOL	<u>5 + 10</u>	= 15
ACETONE	<u>2 + 9</u>	= 11
CHLOROFORM	<u>15</u>	15
ETHER	<u>2 + 0.1</u>	2.1
METHANOL	<u>5 + 0.4</u>	5.4
MISCELLANEOUS	<u>1 + 1</u>	2

SIGNATURE

San Peterson

RIR8408

SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN GOVERNOR

COGSWELL BUILDING, ROOM 4201

STATE OF MONTANA

(406) 449-2821

HELENA MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Dear Mr. Mann:

March 22, 1985

Rocky Mountain Laboratories Hazardous Waste
Disposal

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Robert K. Bergman, Operations Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

There are a few types of wastes that, because of their higher hazard, are prohibited from landfill disposal in amounts over 1 Kg (2.2 pounds) per month. You should refer to 40 CFR 261.33 (e) in the enclosed regulations for a list of these wastes. You should ask that Mr. Steiner provide you with an inventory of the hazardous wastes in each load brought to the landfill or, as an alternative, an assurance from him that he has reviewed the wastes against the appropriate lists and found the waste quantities to be within the pertinent quantity limitations.

I realize that this is a complex and difficult set of regulations, and our office will be available to assist you with any questions you may have. The development of a working agreement with the Rocky Mountain Laboratory, so that you know what to expect in the way of chemical wastes from them, should make your acceptance of their waste loads much easier.

Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RML Hazardous Wastes Sent To Victor Landfill 4/30/85

EPA waste No. and Name	gm/liter	Sp. grav	Qty (l)	Haz Constit (gm)	Waste (kg)
Total:					
D001 Ethanol	798.000	0.798	3.420	2,729.16	2.73
Total:				2,729.16	2.73
D001 Petroleum Ether	650.000	0.650	0.030	19.50	0.02
Total:				19.50	0.02
D004 Arsenic salts in sol (approx 7.5 gm As salt/L)	7.500	1.000	0.402	3.02	0.40
Total:				3.02	0.40
D001 Isopropyl Alcohol	785.000	0.785	2.375	1,864.38	1.86
Total:				1,864.38	1.86
P087 Osmium tetroxide (mixed w/excess organic matter inact)	1.000		0.402	0.40	
Total:				0.40	0.00
U002 Acetone	798.000	0.788	1.550	1,221.40	1.22
Total:				1,221.40	1.22
U003 Acetonitrile	787.000	0.787	3.775	2,970.93	2.97
Total:				2,970.93	2.97
U007 Acrylamide	80.000	1.000	0.400	32.00	0.40
Total:				32.00	0.40
U044 Chloroform	1,484.000	1.484	1.383	2,052.37	2.05
Total:				2,052.37	2.05
U122 4% Formaldehyde in solution	43.000	1.000	10.400	447.20	10.40
Total:				447.20	10.40
U188 Phenol	1.000	1.000	1.777	1.78	1.78

RML Hazardous Wastes Sent To Victor Landfill 4/30/85

EPA waste No. and Name	ga/liter	Sp. grav	Qty (l)	Haz Constit (gm)	Waste (kg)
			Total:	1.78	1.78
U196 Pyridine	978.000	0.978	0.117	110.51	0.11
			Total:	110.51	0.11
U220 Toluene	866.000	0.866	0.035	30.31	0.03
			Total:	30.31	0.03
U239 Xylene	866.000	0.866	1.490	1,290.34	1.29
			Total:	1,290.34	1.29
			Total:	12,773.30	25.26

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN GOVERNOR

COGSWELL BUILDING ROOM 4201

STATE OF MONTANA

(406) 449-2821

HELENA MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Dear Mr. Mann:

April 30, 1985

Rocky Mountain Laboratories Hazardous Waste
Disposal

The hazardous wastes listed on the attached
inventory have been reviewed against the
appropriate lists in 40 CFR 261 and are
within the pertinent quantity limitations
of a Small Quantity Generator.

Robert K. Bergman

Robert K. Bergman, Operations Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

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Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN GOVERNOR

COGSWELL BUILDING ROOM 4201

STATE OF MONTANA

(406) 449-2821

May 31, 1985

HELENA MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Rocky Mountain Laboratories Hazardous Waste Disposal

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Dear Mr. Mann:

Robert K. Bergman

Robert K. Bergman, Operations Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

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Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RML Hazardous Wastes Sent To Victor Landfill 5/31/85

EPA waste No. and Name	ga/liter	Sp. grav	Gty (l)	Haz Constit (gm)	Waste (kg)
Total:					
D001 Ethanol	798.000	0.798	2.070	1,651.86	1.65
Total:				1,651.86	1.65
D004 Arsenic salts in sol (approx 7.5 ga As salt/L)	7.500	1.000	0.500	3.75	0.50
Total:				3.75	0.50
D009 Mercury salts in sol (18.47 ga Hg/liter)	18.470	1.000	4.900	90.50	4.90
Total:				90.50	4.90
D001 Isopropyl Alcohol	785.000	0.785	0.530	416.05	0.42
Total:				416.05	0.42
P087 Osmium tetroxide (mixed w/excess organic matter inact)	1.000	0.402	0.500	0.50	0.20
Total:				0.50	0.20
U002 Acetone	788.000	0.788	0.300	236.40	0.24
Total:				236.40	0.24
U044 Chloroform	1,484.000	1.484	0.240	356.16	0.36
Total:				356.16	0.36
U122 4% Formaldehyde in solution	43.000	1.000	3.150	135.45	3.15
Total:				135.45	3.15
U188 Phenol	1.000	1.000	0.240	0.24	0.24
Total:				0.24	0.24
Total:				2,890.91	11.66



TED SCHWINDEN GOVERNOR

COGSWELL BUILDING ROOM 4201

STATE OF MONTANA

14061449-2821

HELENA MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

July 31, 1985

Rocky Mountain Laboratories Hazardous Waste Disposal

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Dear Mr. Mann:

Robert K. Bergman, Operations Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

There are a few types of wastes that, because of their higher hazard, are prohibited from landfill disposal in amounts over 1 Kg (2.2 pounds) per month. You should refer to 40 CFR 261.33 (e) in the enclosed regulations for a list of these wastes. You should ask that Mr. Steiner provide you with an inventory of the hazardous wastes in each load brought to the landfill or, as an alternative, an assurance from him that he has reviewed the wastes against the appropriate lists and found the waste quantities to be within the pertinent quantity limitations.

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Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

Hazardous Waste Sent To Victor Landfill 7/31/95

EPA waste No. and Name	gm/liter	Sp. grav	Qty (l)	Haz Constit (gal)	Waste (kg)
Total:					
D001 Ethanol	798.00	0.798	1.043	991.91	0.99
Total:				991.91	0.99
D001 Isopropyl Alcohol	785.00	0.785	0.225	176.63	0.18
Total:				176.63	0.18
D002 Acetic Acid	1,049.00	1.049	0.050	52.45	0.05
Total:				52.45	0.05
D004 Arsenic salts in sol (Approx 7.5 Gs As Salt/L)	7.50	1.000	1.000	7.50	1.00
Total:				7.50	1.00
K009 Methylene Chloride	325.00	0.325	0.600	195.00	0.20
Total:				195.00	0.20
P087 Osmium tetroxide (mixed w/excess organic matter intact)	1.00	0.402	1.000	1.00	0.40
Total:				1.00	0.40
U002 Acetone	788.00	0.788	0.529	409.76	0.41
Total:				409.76	0.41
U003 Acetonitrile	787.00	0.787	2.800	2,203.60	2.20
Total:				2,203.60	2.20
U044 Chloroform	1,484.00	1.484	0.265	397.71	0.40
Total:				397.71	0.40
U112 Ethyl Acetate	902.00	0.902	0.250	225.50	0.23
Total:				225.50	0.23
U117 Ethyl Ether	713.00	0.713	0.050	35.65	0.04
Total:				35.65	0.04
U122 4% Formaldehyde in solution	43.00	1.000	4.500	193.50	4.50

Hazardous Waste Sent To Victor Landfill 7/31/85

EPA waste No. and Name	gm/liter	Sp. grav	Qty (l)	Haz Constit (gm)	Waste (kg)
			Total:	197.50	1.50
U188 Phenol	1.00	1.000	0.290	0.29	0.29
			Total:	0.29	0.29
U196 Pyridine	978.00	0.978	0.250	244.50	0.24
			Total:	244.50	0.24
U239 Xylene	866.00	0.866	0.340	294.44	0.29
			Total:	294.44	0.29
			Total:	5,429.44	11.42

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN, GOVERNOR

COGSWELL BUILDING ROOM 4201

STATE OF MONTANA

(406) 449-2821

Rocky Mountain Laboratories Hazardous Waste Disposal

HELENA MONTANA 59620

25 November 1981

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40CFR 261 and are within the pertinent quantity limitations for a Small Quantity Generator.

Robert K. Bergman
Robert K. Bergman
Operations Branch

Dear Mr. Mann:

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

There are a few types of wastes that, because of their higher hazard, are prohibited from landfill disposal in amounts over 1 Kg (2.2 pounds) per month. You should refer to 40 CFR 261.33 (e) in the enclosed regulations for a list of these wastes. You should ask that Mr. Steiner provide you with an inventory of the hazardous wastes in each load brought to the landfill or, as an alternative, an assurance from him that he has reviewed the wastes against the appropriate lists and found the waste quantities to be within the pertinent quantity limitations.

I realize that this is a complex and difficult set of regulations, and our office will be available to assist you with any questions you may have. The development of a working agreement with the Rocky Mountain Laboratory, so that you know what to expect in the way of chemical wastes from them, should make your acceptance of their waste loads much easier.

Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:CW

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Wastes from Rocky Mountain Laboratories

Delivered to Victor Land Fill on November 25, 1981

U002	Acetone	2.250 liters X .788	=	1.773 kg
U044	Chloroform	.15 liters X 1.484	=	.223 kg
U117	Ethyl Ether	1.8 liters X .736	=	1.325 kg
U122	Formaldehyde	.435 liters X 1.081	=	.470 kg
U151	Mercury			.005 kg
U188	Phenol			1.258 kg
U239	Xylene	6.19 liters X .86	=	5.323 kg
				<hr/>
TOTAL				10.377 kg

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN GOVERNOR

COGSWELL BUILDING ROOM 4201

STATE OF MONTANA

(406) 449-2821

Rocky Mountain Laboratories Hazardous Waste Disposal
30 October 1981

ENANA MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations for a Small Quantity Generator.

Robert K. Bergman
Robert K. Bergman
Operations Branch

Dear Mr. Mann:

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

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Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

recycled paper

ecology and environment

RCRA Hazardous Wastes from Rocky Mountain Laboratories

Delivered to Victor Land Fill on October 30, 1981

U002	Acetone	5.3 liters X .788	=	4.176 kg
U044	Chloroform	.08 liters X 1.484	=	.119 kg
U122	Formaldehyde	1.050 liters X 1.081	=	1.135 kg
U188	Aqueous Phenol	.130 liters X 1.0	=	.130 kg
U213	Tetrahydrofuran			.500 kg
U239	Xylene	1.00 liter X .86	=	.860 kg

Mercury Compounds	NOS			.290 kg
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Silver Compounds	NOS			.106 kg
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TOTAL				7.316 kg
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DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN, GOVERNOR

COGSWELL BUILDING ROOM 4201

STATE OF MONTANA

(406) 449-2821

HELENA MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Rocky Mountain Laboratories Hazardous Waste
Disposal 20 July 1981

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations for a Small Quantity Generator.

Dear Mr. Mann:

Robert W. Steiner
Robert W. Steiner
Chief, Operations Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

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Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Wastes from Rocky Mountain Laboratories

Delivered to Victor Land Fill on July , 1981

U002	Acetone	2.55 liters X .788	=	2.01 kg
U044	Chloroform	35.0 liters X 1.484	=	51.84 kg
U057	Cyclohexane	.06 liters X .7781	=	.05 kg
U122	Formaldehyde	1.51 liters X 1.081	=	1.64 kg
U154	Methanol	1.70 liters X .7924	=	1.35 kg
U211	Carbon Tetrachloride	2.5 liters X 1.4607	=	3.65 kg
U236	Trypan Blue	.006 liters X 1	=	.006 kg
U239	Xylene	11.4 liters X .86	=	9.80 kg
	Silver compounds			<u>.085 kg</u>
			TOTAL	70.43 kg

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN, GOVERNOR

COGSWELL BUILDING ROOM A201

STATE OF MONTANA

(406) 449-2821

HELENA MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Rocky Mountain Laboratories Hazardous Waste
Disposal

1/28/82

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations for a Small

Quantity Generator.

Robert K. Bergman
Robert K. Bergman, Operations Branch

Dear Mr. Mann:

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

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Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Wastes from Rocky Mountain Laboratories
Delivered to Victor Land Fill on January 28, 1982

P032	Cyanogen Bromide		.100 kg
U003	Acetonitrile	.100 liters X .787	.079 kg
U044	Chloroform	.301 liters X 1.484	.447 kg
U122	Formaldehyde	.756 liters X 1.081	.817 kg
U234	Trinitrobenzene sulfonic acid		.002 kg
U239	Xylene	7.7 liters X .86	6.622 kg
	Silver Compounds	NOS	.037 kg
			<hr/>
Total			8.104 kg

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN GOVERNOR

COGSWELL BUILDING ROOM 4201

STATE OF MONTANA

(406) 449-2821

HELENA, MONTANA 59620

June 12, 1981

Rocky Mountain Laboratory Hazardous Waste
Disposal 30 June 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations for a Small Quantity Generator.

Dear Mr. Mann:

Mr. Robert Steiner of the Rocky Mountain Laboratory, was asked that Chief, Operations Branch write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

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Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840



RCRA Hazardous Wastes from Rocky Mountain Laboratories

Delivered to Victor Land Fill on 30 June 1981

U002	Acetone	1.51 liters X .788	=	1.2	kg
U022	3,4 Benzopyrene			.002	kg
U044	Chloroform	11.36 liters X 1.484	=	16.8	kg
U094	9,10 Dimethylbenzanthracene			.0001	kg
U157	3 Methylcholanthrene			.002	kg
U188	Phenol			.108	kg
U220	Toluene	.309 liter X .866	=	.300	kg
	Silver compounds		=	.255	kg
		TOTAL		18.667	kg



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH

NATIONAL INSTITUTE OF ALLERGY
AND INFECTIOUS DISEASES
ROCKY MOUNTAIN LABORATORY
HAMILTON MONTANA 59602

May 26, 1981

Mr. Duane Robertson, Chief
Solid Waste Bureau
Department of Environmental Science
Cogswell Building
Helena, MT 59601

Dear Mr. Robertson:

After our conversation of Friday, May 22, 1981, relative to ~~our~~ hazardous waste disposal I contacted Mr. Charles W. Mann, owner-operator of the Victor Sanitary Landfill. I told Mr. Mann of the conversation Dr. Bergman and I had with you that day. He was very cooperative. He is interested in operating the landfill in a businesslike and lawful manner.

Attached you will find a list of the waste we placed in the site on May 26, 1981, and the equivalent weight of each kind or class of material. This list reflects the total hazardous waste generated at Rocky Mountain Laboratories since November 1, 1980. It averages out to approximately 40 kilograms per month.

I believe the law allows us to dispose of up to 1000 kg per month. This amount (40 kg) is well below the legal limit. At the present time we see no reason to expect to approach the legal limit any time in the future. Mr. Mann asked me if I thought it would be reasonable for your office to write him an informal note authorizing him to accept some definite quantity of hazardous waste for each person you authorize to use the landfill for the purpose of disposing of hazardous waste. I told him I thought it would be a good idea.

In the case of RML I would be happy to accept some figure below the allowable amount which we can both live with. I would suggest a figure of 100 kg per month, not to exceed 1200 kg per year to start with. If we were to clean out a laboratory and needed to dispose of some out-of-date material we could request special authorization from you.

Please give me a call and let me know of your feelings on the situation. I know Mr. Mann would feel more comfortable if he had something simple in writing which may give your office some control.

Sincerely,

Robert W. Steiner
Robert W. Steiner
Chief, Operations Branch

Attachment

RECEIVED
MAY 29 1981
MONTANA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCE
SOLID WASTE SECTION

SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN, GOVERNOR

COWEELL BUILDING ROOM 4201

STATE OF MONTANA

(406) 449-2821

HELENA MONTANA 59620

Rocky Mountain Laboratories Hazardous Waste Disposal

30 Dec 1983

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Dear Mr. Mann:

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Robert K. Bergman
Robert K. Bergman, Operations Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

There are a few types of wastes that, because of their higher hazard, are prohibited from landfill disposal in amounts over 1 Kg (2.2 pounds) per month. You should refer to 40 CFR 261.33 (e) in the enclosed regulations for a list of these wastes. You should ask that Mr. Steiner provide you with an inventory of the hazardous wastes in each load brought to the landfill or, as an alternative, an assurance from him that he has reviewed the wastes against the appropriate lists and found the waste quantities to be within the pertinent quantity limitations.

I realize that this is a complex and difficult set of regulations, and our office will be available to assist you with any questions you may have. The development of a working agreement with the Rocky Mountain Laboratory, so that you know what to expect in the way of chemical wastes from them, should make your acceptance of their waste loads much easier.

Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Wastes List from Rocky Mountain Labs
Delivered to Victor Land Fill on 30 December 1983

		Hazardous Constituent (kg)	Waste (kg)
D001	Isoamyl alcohol .005 X .813	.004	.004
D002	Trichloroacetic acid	.120	.120
D011	Silver salts in solution (approx 5.62 gm Ag/Liter)	.064	11.355
U002	Acetone .500 X .788	.394	.394
U003	Acetonitrile 4.320 X .787	3.400	3.400
U044	Chloroform .316 X 1.484	.469	.469
U077	Dichloroethane .120 X 1.257	.151	.151
U122	4% Formaldehyde in solution	.748	17.300
U196	Pyridine .240 X .978	.235	.235
U189	Phenol	.328	.328
U239	Xylenes 4.500 X .866	3.897	3.897
Total		9.810	37.653

NORTHWEST FOAM SYSTEMS INC.

P.O. Box 2482 • Great Falls, Montana 59403 • Ph. (406) 727-0644

February 6, 1984

Bitterroot Valley Landfill
c/o C.W. Mann
P. O. Box 10
Victor, Mt. 59875

Dear Mr. Mann:

We have been informed by the Environmental Protection Agency that your dump site is approved by them for disposal of asbestos waste.

We will be working in Hamilton at the Post Office starting February 13, removing asbestos. This waste material must be disposed of and buried properly. We would like to know if you will accommodate us on this matter.

If there are any questions or you foresee any problems, please contact us.

The asbestos is put in bags and transported in 55 gallon drums.

Thank you.

Sincerely,



Delma Mason
Northwest Foam Systems Inc.

DM:cea

SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN GOVERNOR

COGSWELL BUILDING ROOM A201

STATE OF MONTANA

(406) 449-2821

HELENA MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Rocky Mountain Laboratories Hazardous Waste
Disposal 29 Feb 1984

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

A handwritten signature in cursive script that reads "Robert K. Bergman".

Robert K. Bergman, Operations Branch

Dear Mr. Mann:

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

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I realize that this is a complex and difficult set of regulations, and our office will be available to assist you with any questions you may have. The development of a working agreement with the Rocky Mountain Laboratory, so that you know what to expect in the way of chemical wastes from them, should make your acceptance of their waste loads much easier.

Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Waste List from Rocky Mountain Labs
Delivered to Victor Land Fill on 29 February 1984

		Hazardous Constituent (kg)	Waste (kg)
D001	Ethanol .700 X .798	.559	.559
D001	Petroleum Ether .100 X .650	.065	.065
D001	Amyl Acetate .150 X .876	.131	.131
D002	Trifluoroacetic Acid	.005	.005
D002	Trichloroacetic Acid	.065	.065
D009	Mercuric Salts in Solution (approx. 18.47 gm Hg/liter)	.053	2.850
D011	Silver Salts in Solution (approx. 3.83 gm Ag/liter)	.116	30.170
P087	Osmium Tetroxide (mixed with excess of organic material for inactivation)	.002	.002
U002	Acetone 5.360 X .788	4.224	4.224
U003	Acetonitrile 4.600 X .787	3.620	3.620
U007	Acrylamide	.450	1.500
U044	Chloroform .068 X 1.484	.101	.101
U077	Dichloroethane .765 X 1.257	.962	.962
U117	Ethyl Ether .043 X .713	.031	.031
U122	14.3% Formaldehyde in Solution	2.171	14.022
U188	Phenol	.487	8.047
U196	Pyridine .139 X .978	.136	.136
U239	Xylenes .300 X .866	.260	.260

Total

13.438

66.750

SOLID WASTE MANAGEMENT BUREAU



TED SCHWINGEN, GOVERNOR

COGSWELL BUILDING ROOM 201

STATE OF MONTANA

(406) 449-2821

HELENA, MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Dear Mr. Mann:

Rocky Mountain Laboratories Hazardous Waste Disposal

31 Jan 1984

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Robert K. Bergman
Robert K. Bergman, Operations Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,200 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

There are a few types of wastes that, because of their higher hazard, are prohibited from landfill disposal in amounts over 1 Kg (2.2 pounds) per month. You should refer to 40 CFR 261.33 (e) in the enclosed regulations for a list of these wastes. You should ask that Mr. Steiner provide you with an inventory of the hazardous wastes in each load brought to the landfill or, as an alternative, an assurance from him that he has reviewed the wastes against the appropriate lists and found the waste quantities to be within the pertinent quantity limitations.

I realize that this is a complex and difficult set of regulations, and our office will be available to assist you with any questions you may have. The development of a working agreement with the Rocky Mountain Laboratory, so that you know what to expect in the way of chemical wastes from them, should make your acceptance of their waste loads much easier.

Sincerely,

Fogor C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:OW

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Waste List from Rocky Mountain Labs
Delivered to Victor Land Fill on 31 January 1984

		Hazardous Constituent (kg)	Waste (kg)
D001	Ethanol	1.100	1.100
D002	Acetic acid	.025	.025
D002	Trichloroacetic acid	.090	.090
D011	Silver salts in solution (approx. 5.62 gm Ag / Liter)	.064	11.355
U002	Acetone .820 X .798	.646	.646
U003	Acetonitrile 3.240 X .787	2.550	2.550
U044	Chloroform .210 X 1.484	.312	.312
U077	Dichloroethane .090 X 1.257	.113	.113
U122	4% Formaldehyde in solution	.290	6.700
U189	Phenol in solution	.509	23.877
U196	Pyridine .180 X .978	.176	.176
U239	Xylenes 4.000 X .866	3.464	3.464
Total		9.339	50.408

SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN GOVERNOR

COGSWELL BUILDING ROOM 4201

STATE OF MONTANA

(406) 449-2921

HELENA MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Rocky Mountain Laboratories Hazardous Waste
Disposal

30 Nov 1983

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Dear Mr. Mann:

A handwritten signature in cursive script, reading "Robert K. Bergman".

Robert K. Bergman, Operations Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

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Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Wastes List from Rocky Mountain Labs
Delivered to Victor Land Fill on 30 November 1983

		Hazardous Constituent (kg)	Waste (kg)
		.002	.002
DC01	Isoamyl alcohol .002 X .813		.015
DC02	Trichloroacetic acid	.015	13.355
DC11	Silver salts in solution (approx. 5.62 gm Ag/ Liter)	.075	
PO87	Caesium tetroxide (mixed with excess of organic material for inactivation)	.002	.002
		.433	.433
U002	Acetone .550 X .798		.740
		.740	
U03	Acetonitrile .940 X .787		.239
		.239	
U044	Chloroform .161 X 1.484		.095
		.095	
U057	Cyclohexanone .100 X .948		.019
		.019	
U077	Dichloroethane .015 X 1.257		5.800
		.232	
U122	4% Formaldehyde in solution	.833	.833
U199	Phenol	.029	.029
U196	Pyridine .030 X .978		.017
		.017	
U220	Toluene .020 X .866		6.019
		6.019	
U239	Xylenes 6.950 X .866		27.598
Total		8.750	

SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN GOVERNOR

COGSWELL BUILDING ROOM 4201

STATE OF MONTANA

(406) 449-2821

HELENA MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Dear Mr. Mann:

Rocky Mountain Laboratories Hazardous Waste
Disposal 28 Oct 1983

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Robert K. Bergman
Robert K. Bergman, Operations Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

There are a few types of wastes that, because of their higher hazard, are prohibited from landfill disposal in amounts over 1 Kg (2.2 pounds) per month. You should refer to 40 CFR 261.33 (e) in the enclosed regulations for a list of these wastes. You should ask that Mr. Steiner provide you with an inventory of the hazardous wastes in each load brought to the landfill or, as an alternative, an assurance from him that he has reviewed the wastes against the appropriate lists and found the waste quantities to be within the pertinent quantity limitations.

I realize that this is a complex and difficult set of regulations, and our office will be available to assist you with any questions you may have. The development of a working agreement with the Rocky Mountain Laboratory, so that you know what to expect in the way of chemical wastes from them, should make your acceptance of their waste loads much easier.

Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:GW

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Wastes List from Rocky Mountain Labs
Delivered to Victor Land Fill on 29 October 1983

	Hazardous Constituent (kg)	Waste (kg)
D001 Petroleum Ether .100 liters X .650	.065	.065
D002 Trichloroacetic acid	.143	.143
D009 Mercuric salts in solution (approx. 18.47 gm Hg / liter)	.022	1.200
U002 Acetone 1.470 liters X .788	1.158	1.158
U003 Acetonitrile 5.130 liters X .787	4.037	4.037
U044 Chloroform .590 liters X 1.484	.861	.861
U077 Dichloroethane .143 liters X 1.257	.180	.180
U122 4% Formaldehyde in soln.	.236	5.900
U189 Phenol	.380	.380
U196 Pyridine .285 liters X .978	.279	.279
U239 Xylenes .2.200 liters X .866	1.905	1.905
Total	9.266	16.108

SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN GOVERNOR

COGSWELL BUILDING ROOM 201

STATE OF MONTANA

(406) 449-2821

HELENA MONTANA 59620

Rocky Mountain Laboratories Hazardous Waste
Disposal

30 Sept 1993

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Dear Mr. Mann:

A handwritten signature in dark ink, appearing to read "Robert K. Bergman".

Robert K. Bergman, Operations Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

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Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Wastes List from Rocky Mountain Labs
Delivered to Victor Land Fill on 30 September 1993

	Hazardous Constituent (kg)	Waste (kg)
D001 Methanol .300 liters X .792	.238	.238
D001 Petroleum Ether .500 liters X .650	.325	.325
D002 Trichloroacetic Acid	.050	.050
D011 Silver salts in solution (approx 5.62 gm Ag / liter)	.032	5.673
U003 Acetonitrile 1.800 liters X .737	1.417	1.417
U002 Acetone 4.475 liters X .788	3.526	3.526
U044 Chloroform .870 liters X 1.484	1.291	1.291
U077 Dichloroethane .050 liters X 1.257	.063	.063
U122 4% Formaldehyde in soln.	.470	11.800
U189 Phenol	.487	.487
U196 Pyridine .100 liters X .973	.098	.098
U239 Xylenes 5.680 liters X .866	4.919	4.919
Total	12.916	29.892

SOLID WASTE MANAGEMENT BUREAU



TED SCHWINGEN GOVERNOR

COWGELL BUILDING ROOM 1201

STATE OF MONTANA

(406) 449 2821

HELENA MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Dear Mr. Mann:

Rocky Mountain Laboratories Hazardous Waste
Disposal
26 Aug 1983

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Robert K. Bergman
Robert K. Bergman, Operations

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

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Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Waste List from Rocky Mountain Labs
Delivered to Victor Land Fill on 26 August 1983

	Hazardous Constituent (kg)	Waste (kg)
D001 Methanol .900 liters X .792	.713	.713
D009 Mercuric salts in solution (approx 18.47 gm Hg/ liter)	.021	1.100
D011 Silver salts in solution (approx 5.62 gm Ag / liter)	.064	11.355
U002 Acetone .805 liters X .798	.634	.634
U044 Chloroform 4.775 liters X 1.484	7.086	7.036
U108 Dioxane 5 ml / 100 ml buffer	.005	.100
U122 4% Formaldehyde in solution	.190	4.400
U189 Phenol	.370	.370
U239 Xylenes 4.300 liters X .866	3.724	3.724
Total	12.877	29.552

SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN GOVERNOR

COGSWELL BUILDING ROOM 201

STATE OF MONTANA

(406) 449-2821

HELENA MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Rocky Mountain Laboratories Hazardous Waste
Disposal

29 July 83

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Dear Mr. Mann:

Robert K. Bergman
Robert K. Bergman, Operations

Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

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Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:GW

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Waste List from Rocky Mountain Labs
Delivered to Victor Land Fill on 29 July 1983

	Hazardous Constituent (kg)	Waste (kg)
D011 Silver salts in solution (approx 5.62 gm Ag / liter)	.064	.355
P087 Osmium tetroxide (mixed with excess of organic material for inactivation)	.002	.002
P105 Sodium azide (1 gm/ liter)	.00075	.750
U002 Acetone 2.630 liters X .788	2.072	2.072
U003 Acetonitrile 2.100 liters X .787	1.653	1.653
U007 Acrylamide	1.000	1.000
U044 Chloroform .111 liters X 1.484	.165	.165
U077 Dichloroethane .690 liters X 1.257	.867	.867
U122 5% Formaldehyde in soln.	.562	10.750
U188 Phenol	.184	.184
U196 Pyridine .210 liters X .978	.205	.205
U211 Carbontetrachloride .450 liters X 1.4607	.657	.657
U220 Toluene .750 liters X .866	.650	.650
U239 Xylenes 4.640 liters X .866	4.018	4.018
Total	12.09975	34.328

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES



TED SCHWINDEN, GOVERNOR

COGSWELL BUILDING

STATE OF MONTANA

HELENA, MONTANA 59620

July 11, 1983

Mr. Greg Lakes
Missoulian
159 Black Lane
Corvallis, MT 59828

Dear Mr. Lakes:

I have enclosed a copy of the letter by which we established conditions on the receipt of small quantity hazardous wastes by the Victor landfill and a copy of the lists of hazardous wastes regulated in Montana. As you will note, you were correct in mentioning the 200 kg per month limit on all hazardous wastes received at the landfill.

Please contact Jim Leiter or me if you have further questions in this regard.

Sincerely,

A handwritten signature in cursive script, appearing to read "Roger C. Thorvilson".

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division
Telephone: (406) 449-2821

jg

cc: Don Mullin
Robert Bergmon
Chuck Mann

SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN GOVERNOR

CORSWELL BUILDING ROOM 4201

STATE OF MONTANA

(406) 449-2821

HELENA, MONTANA 59620

Rocky Mountain Laboratories Hazardous Waste
Disposal

30 June 1983

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Dear Mr. Mann:

Robert K. Bergman
Robert K. Bergman, Operations

Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,200 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

There are a few types of wastes that, because of their higher hazard, are prohibited from landfill disposal in amounts over 1 Kg (2.2 pounds) per month. You should refer to 40 CFR 261.33 (e) in the enclosed regulations for a list of these wastes. You should ask that Mr. Steiner provide you with an inventory of the hazardous wastes in each load brought to the landfill or, as an alternative, an assurance from him that he has reviewed the wastes against the appropriate lists and found the waste quantities to be within the pertinent quantity limitations.

I realize that this is a complex and difficult set of regulations, and our office will be available to assist you with any questions you may have. The development of a working agreement with the Rocky Mountain Laboratory, so that you know what to expect in the way of chemical wastes from them, should make your acceptance of their waste loads much easier.

Sincerely,

Peter C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Wastes List from Rocky Mountain Labs
Delivered to Victor Land Fill on 30 June 1983

D009	Mercuric chloride in solution (18.47 gm Hg / liter)	2.200 kg
D011	Silver salts in solution (approx. 5.62 gm Ag / liter)	11.355 kg
U044	Chloroform .040 liters X 1.484	.059 kg
U002	Acetone 3.250 liters X .788	2.561 kg
U188	Phenol	.030 kg
U239	Xylene 3.9 liters X .866	3.377 kg
?	4% Formaldehyde in solution	14.600 kg
		<hr/>
Total		34.182 kg

SOLID WASTE MANAGEMENT BUREAU



TED SCHWINGEN GOVERNOR

STATE OF MONTANA

(406) 449-2821

CROSSWELL BUILDING ROOM 4201

HELENA MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Dear Mr. Mann:

Rocky Mountain Laboratories Hazardous Waste
Disposal 31 May 83

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Robert K. Bergman
Robert K. Bergman, Operations Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

There are a few types of wastes that, because of their higher hazard, are prohibited from landfill disposal in amounts over 1 Kg (2.2 pounds) per month. You should refer to 40 CFR 261.33 (e) in the enclosed regulations for a list of these wastes. You should ask that Mr. Steiner provide you with an inventory of the hazardous wastes in each load brought to the landfill or, as an alternative, an assurance from him that he has reviewed the wastes against the appropriate lists and found the waste quantities to be within the pertinent quantity limitations.

I realize that this is a complex and difficult set of regulations, and our office will be available to assist you with any questions you may have. The development of a working agreement with the Rocky Mountain Laboratory, so that you know what to expect in the way of chemical wastes from them, should make your acceptance of their waste loads much easier.

Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Wastes List from Rocky Mountain Labs
Delivered to Victor Land Fill on 31 May 1983

DO01	Methanol	1.810 liters X .799	1.446 kg
U002	Acetone	1.110 liters X .798	.875 kg
U044	Chloroform	.349 liters X 1.484	.518 kg
U122	Formaldehyde	1.128 liters X 1.081	1.219 kg
U188	Phenol		.965 kg
U239	Xylene	10.100 liters X .866	8.747 kg

Silver Compounds

NOS

.021 kg

Total 13.791 kg

SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN GOVERNOR

COGSWELL BUILDING ROOM 4201

STATE OF MONTANA

(406) 449-2821

HELENA MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Rocky Mountain Laboratories Hazardous Waste
Disposal 4/22/83

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Dear Mr. Mann:

Robert K. Bergman
Robert K. Bergman, Operations Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

There are a few types of wastes that, because of their higher hazard, are prohibited from landfill disposal in amounts over 1 Kg (2.2 pounds) per month. You should refer to 40 CFR 261.33 (e) in the enclosed regulations for a list of these wastes. You should ask that Mr. Steiner provide you with an inventory of the hazardous wastes in each load brought to the landfill or, as an alternative, an assurance from him that he has reviewed the wastes against the appropriate lists and found the waste quantities to be within the pertinent quantity limitations.

I realize that this is a complex and difficult set of regulations, and our office will be available to assist you with any questions you may have. The development of a working agreement with the Rocky Mountain Laboratory, so that you know what to expect in the way of chemical wastes from them, should make your acceptance of their waste loads much easier.

Sincerely,

Foger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Wastes List from Rocky Mountain Labs
Delivered to Victor Land Fill on April 22, 1983

U002	Acetone	.220 liters X .788	.252 kg
U044	Chloroform	.050 liters X 1.494	.074 kg
U122	Formaldehyde	.604 liters X 1.081	.653 kg
U188	Phenol		.400 kg
U239	Xylene	4.870 liters X .866	4.217 kg

Silver Compounds

NOS

.043 kg

Total 5.639 kg

SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN GOVERNOR

COGSWELL BUILDING ROOM 4201

STATE OF MONTANA

(406) 449-2821

HELENA MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Dear Mr. Mann:

Rocky Mountain Laboratories Hazardous Waste Disposal
3/30/83

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Robert K. Bergman
Robert K. Bergman, Operations

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I, Branch, write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

There are a few types of wastes that, because of their higher hazard, are prohibited from landfill disposal in amounts over 1 Kg (2.2 pounds) per month. You should refer to 40 CFR 261.33 (e) in the enclosed regulations for a list of these wastes. You should ask that Mr. Steiner provide you with an inventory of the hazardous wastes in each load brought to the landfill or, as an alternative, an assurance from him that he has reviewed the wastes against the appropriate lists and found the waste quantities to be within the pertinent quantity limitations.

I realize that this is a complex and difficult set of regulations, and our office will be available to assist you with any questions you may have. The development of a working agreement with the Rocky Mountain Laboratory, so that you know what to expect in the way of chemical wastes from them, should make your acceptance of their waste loads much easier.

Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Waste List from Rocky Mountain Labs
Delivered to Victor Land Fill on March 30, 1983

P087	Osmium tetroxide (mixed with excess of organic material for inactivation)	.002 kg
U002	Acetone 2.140 liters X .758	1.606 kg
U044	Chloroform .741 liters X 1.484	1.100 kg
U122	Formaldehyde 1.034 liters X 1.081	1.118 kg
U188	Phenol	.342 kg
U239	Xylene 3.600 liters X .966	3.118 kg
	Mercury compounds NOS	.074 kg
	Silver compounds NOS	.085 kg

Total 7.525 kg



TED SCHWINDEN GOVERNOR

COGSWELL BUILDING ROOM 4201

STATE OF MONTANA

(406) 449-2821

HELENA MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Dear Mr. Mann:

Rocky Mountain Laboratories Hazardous Waste
Disposal 2/25/83

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Robert K. Bergman

Robert K. Bergman, Operations
Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

There are a few types of wastes that, because of their higher hazard, are prohibited from landfill disposal in amounts over 1 Kg (2.2 pounds) per month. You should refer to 40 CFR 261.33 (e) in the enclosed regulations for a list of these wastes. You should ask that Mr. Steiner provide you with an inventory of the hazardous wastes in each load brought to the landfill or, as an alternative, an assurance from him that he has reviewed the wastes against the appropriate lists and found the waste quantities to be within the pertinent quantity limitations.

I realize that this is a complex and difficult set of regulations, and our office will be available to assist you with any questions you may have. The development of a working agreement with the Rocky Mountain Laboratory, so that you know what to expect in the way of chemical wastes from them, should make your acceptance of their waste loads much easier.

Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Waste List from Rocky Mountain Labs
Delivered to Victor Land Fill on February 25, 1983

D001	Petroleum ether	.300 liters X .650	.195 kg
U002	Acetone	1.345 liters X .788	1.060 kg
U044	Chloroform	1.170 liters X 1.484	1.736 kg
U122	Formaldehyde	.820 liters X 1.081	.886 kg
U188	Phenol		.630 kg
U239	Xylene	7.650 liters X .866	6.625 kg
	Silver Compounds	NOS	.086 kg

Total 11.218 kg

SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN GOVERNOR

STATE OF MONTANA

COGSWELL BUILDING ROOM 4201

14061449-2021

HELENA MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Rocky Mountain Laboratories Hazardous Waste
Disposal 1/27/83

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Dear Mr. Mann:

Robert K. Bereman
Robert K. Bereman, Operations

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I Branch write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

There are a few types of wastes that, because of their higher hazard, are prohibited from landfill disposal in amounts over 1 Kg (2.2 pounds) per month. You should refer to 40 CFR 261.33 (e) in the enclosed regulations for a list of these wastes. You should ask that Mr. Steiner provide you with an inventory of the hazardous wastes in each load brought to the landfill or, as an alternative, an assurance from him that he has reviewed the wastes against the appropriate lists and found the waste quantities to be within the pertinent quantity limitations.

I realize that this is a complex and difficult set of regulations, and our office will be available to assist you with any questions you may have. The development of a working agreement with the Rocky Mountain Laboratory, so that you know what to expect in the way of chemical wastes from them, should make your acceptance of their waste loads much easier.

Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Waste List from Rocky Mountain Labs
Delivered to Victor Land Fill on January 27, 1983

U002	Acetoe	1.575 liters X .788	1.241 kg
U044	Chloroform	.213 liters X 1.484	.316 kg
U122	Formaldehyde	.272 liters X 1.081	.294 kg
U188	Phenol		.643 kg
U211	Carbon tetrachloride	.145 liters X 1.4607	.212 kg
U239	Xylene	7.00 liters X .866	6.062 kg

Silver Compounds	NOS		.035 kg
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Total			9.853 kg
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SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN GOVERNOR

STATE OF MONTANA

COGSWELL BUILDING ROOM 4201

(406)449-2021

HELENA MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Dear Mr. Mann:

Rocky Mountain Laboratories Hazardous Waste
Disposal 12/30/82

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Robert K. Bergman
Robert K. Bergman, Operations
Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

There are a few types of wastes that, because of their higher hazard, are prohibited from landfill disposal in amounts over 1 Kg (2.2 pounds) per month. You should refer to 40 CFR 261.33 (e) in the enclosed regulations for a list of these wastes. You should ask that Mr. Steiner provide you with an inventory of the hazardous wastes in each load brought to the landfill or, as an alternative, an assurance from him that he has reviewed the wastes against the appropriate lists and found the waste quantities to be within the pertinent quantity limitations.

I realize that this is a complex and difficult set of regulations, and our office will be available to assist you with any questions you may have. The development of a working agreement with the Rocky Mountain Laboratory, so that you know what to expect in the way of chemical wastes from them, should make your acceptance of their waste loads much easier.

Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:GW

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Wastes from Rocky Mountain Labs
Delivered to Victor Land Fill on December 30, 1982

D001	Glutaraldehyde		.018 kg
D001	Ethanol	.050 liters X .793	.040 kg
D001	2-ethoxyethanol (Cellosolve)	.500 liters X .931	.466 kg
D002	Enhance		.200 kg
D002	Acetic Anhydride		.002 kg
U002	Acetone	.225 liters X .788	.177 kg
U044	Chloroform	.136 liters X 1.484	.202 kg
U108	Dioxane	.001 liters X 1.03	.001 kg
U122	Formaldehyde	.372 liters X 1.081	.402 kg
U154	Methanol	.010 liters X .792	.008 kg
U188	Phenol		.170 kg
U196	Pyridine	.005 liters X .978	.005 kg
U211	Carbon tetrachloride	.300 liters X 1.4607	.438 kg
U239	Xylene	4.000 liters X .866	3.464 kg
	Silver Compounds	NOS	.051 kg

TOTAL 5.644 kg



TED SCHWINDEN, GOVERNOR

COKESWELL BUILDING, ROOM A201

STATE OF MONTANA

(406) 449-2821

HELENA, MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Rocky Mountain Laboratories Hazardous Waste
Disposal 11-30-82

The hazardous waste listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator

Robert K. Bergman
Robert K. Bergman, Operations Branch

Dear Mr. Mann:

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

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I realize that this is a complex and difficult set of regulations, and our office will be available to assist you with any questions you may have. The development of a working agreement with the Rocky Mountain Laboratory, so that you know what to expect in the way of chemical wastes from them, should make your acceptance of their waste loads much easier.

Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Waste from Rocky Mountain Labs
 Delivered to the Victor Land Fill on November 30, 1982

D 001	Dimethoxy Propane		.400	kg
PO o87	Osmium tetroxide		.002	kg
UC02	Acetone	.200 liters x .733	.153	kg
U044	Chloroform	.070 liters x 1.484	.104	kg
U122	Formaldehyde	.784 liters x 1.031	.848	kg
U188	Phenol		.070	kg
U220	Toluene	1.0 liters x .866	.866	kg
U239	Xylene	34.2 liters x .866	29.600	kg
Silver compounds	NOS		.064	kg
Mercury compounds	NOS		.035	kg
Total			32.147	kg

SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN GOVERNOR

COGSWELL BUILDING ROOM 14201

STATE OF MONTANA

(406) 449-2821

HELENA MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Rocky Mountain Laboratories Hazardous Waste
Disposal 10-29-82
The hazardous waste listed on the attached
inventory have been reviewed against the
appropriate lists in 40 CFR 261 and are
within the pertinent quantity limitations
of a Small Quantity Generator

Dear Mr. Mann:

Robert K. Bergman, Operations Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

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I realize that this is a complex and difficult set of regulations, and our office will be available to assist you with any questions you may have. The development of a working agreement with the Rocky Mountain Laboratory, so that you know what to expect in the way of chemical wastes from them, should make your acceptance of their waste loads much easier.

Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Wastes from Rocky Mountain Labs

Delivered to the Victor Land Fill on October 29, 1982

U002	Acetone	.910 liters X .738	.717 kg
U188	Phenol		.169 kg
U196	Pyridine	3.0 liters X .978	2.934 kg
U220	Toluene	.444 liters X .866	.385 kg
U239	Xylene	.700 liters X .366	.606 kg
			<hr/>
	Total		4.811 kg

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN GOVERNOR

COGSWELL BUILDING ROOM 201

STATE OF MONTANA

(406) 449-2821

HELENA MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Dear Mr. Mann:

Rocky Mountain Laboratories Hazardous Waste
Disposal 9/30/82

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the persistent quantity limitations of a Small Quantity Generator.

Robert K. Bergman
Robert K. Bergman, Operations Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

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I realize that this is a complex and difficult set of regulations, and our office will be available to assist you with any questions you may have. The development of a working agreement with the Rocky Mountain Laboratory, so that you know what to expect in the way of chemical wastes from them, should make your acceptance of their waste loads much easier.

Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:CW

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Wastes from Rocky Mountain Labs

Delivered to the Victor Land Fill on September 30, 1982

U002	Acetone	.900 liters X .789	.709 kg
U044	Chloroform	.082 liters X 1.484	.122 kg
U122	Formaldehyde	1.127 liters X 1.081	1.219 kg
U188	Phenol		.005 kg
U239	Xylene	6.575 liters X .866	5.694 kg
	Silver compounds	NOS	.021 kg

Total	7.769 kg
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DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES



TED SCHWINDEN GOVERNOR

COGSWELL BUILDING

STATE OF MONTANA

HELENA, MONTANA 59620

September 17, 1982

Re: Special and Hazardous Waste Questionnaire

To: Waste Management Directors

The U. S. Environmental Protection Agency, as you are most likely aware, has established a comprehensive regulatory program for the management and control of hazardous waste. In Montana, as in many other states, the state, through the Solid Waste Management Bureau, has assumed the responsibilities of managing hazardous waste. In effect, state regulations pertaining to hazardous waste management are substantially equivalent to their federal counterpart.

Exempted both by the state and federal governments from full regulation are hazardous wastes produced by "small" quantity generators provided these generators, among other things, deliver these wastes to disposal facilities that are permitted or licensed by a state to manage municipal or industrial waste. It should be noted that a small quantity generator is defined as one that generates, in a calendar month, a total of less than 1000 kilograms (2,200 lbs.) of hazardous wastes or less than one kilogram (2.2 lbs) of acutely hazardous wastes. This situation can impose serious problems on you both from an operational standpoint as well as from liability considerations.

In order to acquire a clearer picture of the impact that small quantity hazardous wastes and other special wastes have on your facility, I am asking that you fill out the enclosed questionnaire. I would appreciate you addressing any waste material which poses problems for you. If the questionnaire is not adequate to describe hazardous and special waste disposal at your facility, please use the comments section to provide more detail. Please call my office if you have questions regarding the type of information we are requesting.

Sincerely,

A handwritten signature in dark ink, appearing to read "Duane L. Robertson".

DUANE L. ROBERTSON, CHIEF
Solid Waste Management Bureau
Environmental Sciences Division

DLR:vc
Encls.

ENVIRONMENTAL SCIENCE
SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN GOVERNOR

STATE OF MONTANA

COGSWELL BUILDING ROOM A201

(406) 449-2821

HELENA MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Rocky Mountain Laboratories Hazardous Waste
Disposal 8/31/82

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Dear Mr. Mann:

Robert K. Bergman
Robert K. Bergman, Operations Branch

Mr. Robert Steiner of the Rocky Mountain Laboratory has asked that I write you to briefly explain our requirements for the disposal of small quantities of hazardous wastes in licensed sanitary landfills. I am enclosing copies of the state and federal rules which apply. Basically, up to 1,000 Kg (2,200 pounds) per month of hazardous waste from any one waste generator may be legally accepted at a sanitary landfill. Mr. Steiner's records indicate that the Rocky Mountain Laboratory will normally produce far less hazardous waste than 1,000 Kg per month.

There are a few types of wastes that, because of their higher hazard, are prohibited from landfill disposal in amounts over 1 Kg (2.2 pounds) per month. You should refer to 40 CFR 261.33 (e) in the enclosed regulations for a list of these wastes. You should ask that Mr. Steiner provide you with an inventory of the hazardous wastes in each load brought to the landfill or, as an alternative, an assurance from him that he has reviewed the wastes against the appropriate lists and found the waste quantities to be within the pertinent quantity limitations.

I realize that this is a complex and difficult set of regulations, and our office will be available to assist you with any questions you may have. The development of a working agreement with the Rocky Mountain Laboratory, so that you know what to expect in the way of chemical wastes from them, should make your acceptance of their waste loads much easier.

Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Wastes from Rocky Mountain Labs
Delivered to the Victor Land Fill on August 31, 1982

D001	Butanol	.200 liters X .810	.162 kg
D001	Isopropyl alcohol	.100 liters X .785	.079 kg
D001	Methanol	.140 liters X .792	.111 kg
D001	Petroleum ether	.600 liters X .650	.390 kg
D002	Acetic acid	.100 liters X 1.049	.105 kg
U002	Acetone	2.250 liters X .788	1.773 kg
U044	Chloroform	1.130 liters X 1.484	1.677 kg
U117	Ethyl ether	.050 liters X .713	.036 kg
U122	Formaldehyde	.230 liters X 1.081	.303 kg
U188	Phenol		.75 kg
U196	Pyridine	.010 liters X .978	.010 kg
U239	Xylene	7.200 liters X .866	6.235 kg
	Silver compounds	NOS	.043 kg
			<hr/> Total 11.669 kg

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN GOVERNOR

COGSWELL BUILDING ROOM 4201

STATE OF MONTANA

(406) 449-2821

HELENA MONTANA 59620

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

Rocky Mountain Laboratories Hazardous Waste
Disposal 7/22/83

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

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Robert K. Bergman
Robert K. Bergman, Operations

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Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Wastes from Rocky Mountain Labs
Delivered to the Victor Land Fill on July 28, 1982

D001	Isopropyl alcohol	.100 liters X .735	.073 kg
D001	Petroleum ether	.380 liters X .650	.247 kg
U002	Acetone	6.814 liters X .738	5.369 kg
U044	Chloroform	.312 liters X 1.484	.463 kg
U077	1,2 Dichloroethane	.075 liters X 1.257	.094 kg
U117	Diethyl ether	.210 liters X .713	.150 kg
U122	Formaldehyde	.296 liters X 1.081	.320 kg
U188	Phenol		1.613 kg
U239	Xylene	6.100 liters X .966	5.283 kg
	Mercury compounds	NOS	.028 kg
	Silver compounds	NOS	.043 kg
Total			13.698 kg

SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN GOVERNOR

COGSWELL BUILDING ROOM 4201

STATE OF MONTANA

(406) 449-2821

HELENA MONTANA 59620

June 12, 1981

Rocky Mountain Laboratories Hazardous Waste Disposal 6/29/82

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

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Robert K. Bergman
Robert K. Bergman, Operations

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Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:Cw

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

RCRA Hazardous Wastes from Rocky Mountain Labs
Delivered to the Victor Land Fill on June 29, 1992

DO01	Blankrola (ink solvent)	3.785 liters X .800	3.028 kg
P087	Osmium tetroxide (mixed with excess of organic material for inactivation)		.002 kg
U002	Acetone	4.650 liters X .788	3.664 kg
U031	Butanol	.257 liters X .810	.208 kg
U044	Chloroform	.260 liters X 1.48-	.356 kg
U122	Formaldehyde	.160 liters X 1.091	.173 kg
U198	Phenol		.400 kg
U196	Pyridine	.202 liters X .971	.196 kg
U239	Xylene	3.200 liters X .866	2.771 kg
	Silver compounds	NOS	.064 kg

Total 10.894 kg

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
SOLID WASTE MANAGEMENT BUREAU



TED SCHWINDEN, GOVERNOR

COGSWELL BUILDING, ROOM 4201

STATE OF MONTANA

(406) 449-2821

HELENA, MONTANA 59620

Rocky Mountain Laboratories Hazardous Waste
Disposal 5/28/82

June 12, 1981

Mr. Charles W. Mann, Owner
Victor Sanitary Landfill
P. O. Box 247
Victor, Montana 59875

The hazardous wastes listed on the attached inventory have been reviewed against the appropriate lists in 40 CFR 261 and are within the pertinent quantity limitations of a Small Quantity Generator.

Dear Mr. Mann:

Robert K. Bergman
Robert K. Bergman
Operations Branch

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Sincerely,

Roger C. Thorvilson
Solid Waste Management Bureau
Environmental Sciences Division

RCT:CW

Enclosures

cc: ✓ Robert W. Steiner, Chief, Operations Branch, Rocky Mountain Laboratory,
Hamilton, Montana 59840

U002	Acetone	.450 liters X .787	.354 kg
U044	Chloroform	.637 liters X 1.484	.945 kg
U056	Cyclohexane	1.800 liters X .778	1.400 kg
U117	Ethyl ether	.009 liters X .713	.006 kg
U122	Formaldehyde	.504 liters X 1.081	.545 kg
U188	Phenol		.130 kg
U239	Xylene	3.902 liters X .866	3.379 kg
	Chromium compounds	NCS	.453 kg
	Silver compounds	NCS	.021 kg

ecology and environment

REGION VIII SUMMARY OF DATA QUALITY ASSURANCE REVIEW

Case No.: 14772

TDD No.: F08-9005-08

Site: Bitterroot Valley Sanitary Landfill

Contractor Laboratory: Southwest Laboratory of Oklahoma

Data Reviewer : Stacey Smith *GS* Date of Review: 11-2-90

Sample Matrix: 9 Soils and 10 Waters (VOA only for 2 Waters)

Analysis: Full RAS Organics: VOA, BNA, and Pesticides/PCBs

Sample Nos.: HK027, HK034*, HK037, HK038, HK039, HK045, HK046, HK047,
HK048, HK049, HK050, HK051, HK052, HK053, HK054, HK055,
HK056, HK057, HK058*

* VOA only

() Data are acceptable for use.

(X) Data are acceptable for use with qualifications noted.
(With one exception, all qualification were blank related.)

() Data are preliminary - pending verification.

() Data are unacceptable.

Action required by DPO?

No X Yes The following items require action:

Action required by project officer?

No X Yes

REVIEW SUMMARY:

The data for this case was of high quality and very few qualifications were necessary to render the data usable and acceptable. All T.C.L. and T.I.C. identifications were appropriate and only one identification modification was necessary. All other qualifications were blank related. With these following exceptions, all other quality assurance parameters were within acceptable control limits.

The identification of 2-Butanone in VOA sample HK056 was not supported by the mass spectral data. Consequently its identification was changed to "unknown".

Contaminants were found in all blanks. The common laboratory contaminants Methylene chloride and Chloroform were found in VOA blanks. If these analytes were detected in samples at level less than 10 times the amount in the associated blank, then the laboratory qualifiers "BJ" or "B" were changed to "U" and the sample concentration changed to the SQRL. Acetone was not detected in any VOA blanks but detected in some samples and flagged "B" for being present in the blank. In these instances, the "B" qualifier was eliminated. These contaminants are all common organic solvents.

Three different phthalates were found in the BNA water blank. Phthalates are common contaminants associated with plastics and may be the result of insufficient cleaning or the use of plastic containers. Two unknown contaminants were found in the BNA soil blank. If any of these contaminants were found in samples at level less than five times the amount in the associated laboratory blanks, then the same qualifications as described above were rendered.

ORGANICS (VOA, SEMIVOLATILES, BNA)

1.0 HOLDING TIMES

Holding times are established and monitored to ensure analytical results accurately represent analyte concentrations in a sample at the time of collection. Exceeding the holding time for a sample generally affects a loss of the analyte due to a variety of mechanisms, such as deposition on the sample container walls, co-precipitation with particulates and volatilization through leaks in the container.

REVIEW RESULTS:

VOA holding times ranged from 5 to 6 days for water samples and were 10 days for soil samples. BNA holding times ranged from 4 to 5 days for all samples. These holding times are acceptable and no data qualification was required. Note that definitive holding times for soil samples have not been established yet.

2.0 GC/MS TUNING

Prior to sample analysis, GC/MS tuning is carried out on the analytical instrumentation using Bromofluorobenzene (BFB) for the volatile (VOA) fraction and Decafluorotriphenylphosphine (DFTPP) for the semivolatile (BNA) fraction. For these compounds, certain ions in their mass spectra must be present in specific amounts to ensure the instrumentation is correctly tuned and can produce proper mass resolution, identification and sensitivity. The failure of the lab to meet GC/MS tuning criteria indicates severe deficiencies exist with the GC/MS system being used.

REVIEW RESULTS:

All tune criteria were satisfied by both fractions.

3.0 CALIBRATION

Prior to sample analysis the GC/MS system is initially calibrated at five concentrations for each VOA and BNA Target Compound List (TCL) compound to determine the linearity of response. For each compound an Average Relative Response Factor (RRF) is determined which is later used for compound quantification in sample results. A Relative Standard Deviation (RSD) for the average RRF is also calculated and must be less than the established quality control percentage value. Low RRF values and high RSD values are indicative of unsatisfactory instrument calibration and the system may not be capable of acceptable performance for compounds exhibiting such deficiencies. Calibration must be verified each 12 hour period for a GC/MS system; continuing calibration results check satisfactory maintenance and adjustment on a day to day basis. A continuing calibration RRF value is calculated for each TCL compound and this value is compared to the initial calibration average RRF value. Continuing calibration compound results with low RRF values and/or high RRF % difference values indicate the instrument is no longer correctly calibrated for these compounds.

REVIEW RESULTS:

Calibrational difficulties were minor, limited and typical. There was one calibration problem in the VOA fraction and four in the BNA fraction.

In the VOA continuing calibration for instrument I on 9-4-90, the three analytes 4-Methyl-2-pentanone, 2-Hexanone, and 1,1,2,2-Tetrachloroethene had \bar{X} Ds of 36.6%, 41.7%, and 25.7% respectively which exceeds the control limit of 25%. No positive data was affected so no data flags were issued.

In the initial calibration for the BNA fraction, the analyte Benzo(k)fluoranthene had a \bar{X} RSD of 52.2% which exceeds the control limit of 30%. In the following continuing calibrations on 9-19-90, 9-20-90 (0330) and 9-20-90 (1524), the analyte 3-Nitroaniline had \bar{X} Ds of 28.6%, 40.4% and 53.2% respectively which exceeds the control limit of 25%. Again, no positive data was affected so no data flags were issued.

4.0 BLANKS

Laboratory method blank samples are evaluated to assess the existence and magnitude of possible contamination problems. Comparison of sample results to compound concentrations found in blanks makes it possible to determine if these compounds were actually present in the sample or perhaps were introduced as a contaminant during some phase of the analysis procedure.

REVIEW RESULTS:

Contaminants were found in all laboratory blanks for both fractions. In five of the six VOA blanks, Methylene chloride, a common laboratory contaminant, was found at concentrations of 9.0, 13.0, and 2.0 ug/L. Chloroform, another common laboratory contaminant, was found in the remaining blank at a concentration of 4.0 ug/L. If these contaminants were found in samples at levels less than 10 times the amount in the associated blank, then the qualifiers "B" or "BJ" were changed to "U" and the amount changed to the SQRL.

Acetone was not detected in any VOA blank but was detected in some samples and qualified with a "B". In these instances, the "B" qualifier was eliminated.

In the BNA water blank, three contaminants were found. Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate, and 2,4-bis(1,1-Dimethylethyl)phenol at concentrations of 0.5, 34, and 2 ug/L respectively. In the BNA soil blank two unknown compounds were found at concentrations of 4300 and 470 ug/L. If any of these particular contaminants were found in samples at concentrations less than 5 times the amount in the associated blank, then the same qualifications as mentioned above were applied. All qualifications except one were blank associated and are described in the review summary.

5.0 SURROGATE SPIKE RECOVERY

Laboratory performance of individual samples is established by means of surrogate spiking activities. All samples are spiked with surrogate compounds prior to preparation and analysis. Unusually low or high surrogate recovery values may indicate some deficiency in the analytical system or some matrix effect exists, resulting in similarly low or high sample results for other compounds as well.

REVIEW RESULTS:

Surrogate recoveries were within control limits for both fractions.

6.0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE ANALYSIS (MS/MSD)

The MS/MSD analysis is designed to evaluate what possible affect the inherent sample matrix might have on compound recovery. To assess the possible matrix effect, specific compounds are spiked into a selected sample and a duplicate of that sample. The spike recoveries and relative % difference (RPD) between the sample and the duplicate are then determined. Poor spike recoveries and high RPD values may indicate a significant matrix is present and is adversely affecting sample results for that particular matrix or sample medium.

REVIEW RESULTS:

VOA Sample HKO45

RPD: 0 of 5 outside control limits

Spike Recovery: 0 of 10 outside control limits

Sample HKO27

RPD: 0 of 5 outside control limits

spike Recovery: 0 of 10 outside control limits

BNA Sample

7.0 INTERNAL STANDARDS PERFORMANCE

Target compound list (TCL) components identified in samples are quantified using internal standards which are spiked at specific concentrations into each sample. The retention times and chromatogram peak areas for the internal standards in each sample must fall within established quality control limits to ensure that sample quantitation is correct.

REVIEW RESULTS:

All internal standard criteria were satisfied by both fractions.

8.0 COMPOUND IDENTIFICATION

The presence of all TCL compounds found in samples is verified by comparing the mass spectra for the sample compounds to mass spectra obtained from pure standard compounds when run through the GC/MS systems. Retention times for sample compounds are also checked and should match retention times established by the calibration standards. If a sample compound does not meet these criteria, it should be rejected on the basis of tentative evidence.

REVIEW RESULTS:

T.C.L. and T.I.C. identifications were generally appropriate and only one identification modification was necessary. In the VOA sample HK056, mass spectral data did not support the identification of the T.C.L. analyte 2-Butanone and its identification was changed to "unknown". In the BNA fraction, many T.I.C.s were also found in the blanks. If the sample concentration of these of these T.I.C.s was less than five times the amount in the associated blank then the laboratory qualifiers of "J" or "BJ" were changed to "U" and the concentration changed to the SURL.

PESTICIDE DATA

1.0 HOLDING TIMES

REVIEW RESULTS:

All samples had a 4 or 5 day holding time which is acceptable.

2.0 INSTRUMENT PERFORMANCE

Four separate requirements are established to ensure that adequate resolution are achieved by the chromatographic system: 1) DDT retention times are evaluated to check for adequate separation of individual components; 2) retention time windows are calculated and used in compound identification; 3) DDT/Endrin degradation and 4) Retention time shifts for dibutylchlorendate (DBC) are checked to evaluate the condition of the separation column.

REVIEW RESULTS:

All instrument performance criteria were satisfied.

3.0 CALIBRATION

Prior to sample analysis, "calibration factors" and % relative standard deviations (%RSD) are checked in "linearity standards" to ensure satisfactory instrument calibration. Following the successful analysis of these standards a specific 72 hour sample and standard analysis sequence must be followed.

REVIEW RESULTS:

All calibration criteria were satisfied.

4.0 BLANKS

REVIEW RESULTS:

There were no contaminants nor interfering compounds found in the blanks.

5.0 SURROGATE RECOVERY

REVIEW RESULTS:

All surrogate recoveries ranged from 44% to 77% which is within control limits.

6.0 MS/MSD

REVIEW RESULTS:

The Heptachlor recovery in both the MS and MSD was outside the control limit of 35% to 130%. The Heptachlor recoveries were 213% and 268% in the MS and MSD respectively. The laboratory attributed this to an interference.

RPD: 0 of 6 outside control limits

Spike Recovery: 2 of 12 outside control limits

7.0 COMPOUND IDENTIFICATION

Target pesticide compounds identified in a sample are confirmed by checking retention times. Confirmation is also achieved by running the sample through a second column (dual column confirmation). Positive sample results are tentative unless these criteria are met.

REVIEW RESULTS:

All pesticide "hits" were confirmed by secondary column analysis.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NAME: SWL-TULSA

Contract: 5511HQ10

HK027

MODE: SWOK

Case No.: 14772

SAS No.: 55110

SDG No.: HK027

ANALYT: (soil/water) SOIL

Lab Sample ID: 555206

ANALYT WT/VOL: 5.0 (g/mL) 5

Lab File ID: 14679

ANALYT (low/med) LOW

Date Received: 08/27/90

ANALYTURE: not dec. 9

Date Analyzed: 09/04/90

ANALYT (pack/cap) CAP

Dilution Factor: 1.0

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Q

74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	11	U
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-8	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	Trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HK027

Site: SWL-TULSA Contract: 5511HQ10
 Code: SWOK Case No.: 14772 SAS No.: 55110 SDG No.: HK027
 Matrix: (soil/water) SOIL Lab Sample ID: 555306
 Sample wt/vol: 5.0 (g/mL) G Lab File ID: 14679
 Well: (low/med) LOW Date Received: 08/27/90
 Moisture: not dec. 9 Date Analyzed: 09/04/90
 Can (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 10

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====

024

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA 8260-1

HK034

0341

0371

058

0591

045

SWL-TULSA Contract: 5511HQ10
SWOK Case No.: 14772 SAS No.: 55110 SDG No.: H002
(soil/water) WATER Lab Sample ID: 755307
it/vol: 5.0 (g/mL) ML Lab File ID: ED650
(low/med) LOW Date Received: 08/27/90
re: not dec. Date Analyzed: 08/30/90
(pack/cap) CAP Dilution Factor: 1.0

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/kg) 06/L

74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
57-64-1	Acetone	5	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
57-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-71-1	1,1,1,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HK004

S - TULSA

Contract: 5511HQ10

SWOK

Case No.: 14772

SAS No.: 55110

SDG No.: HK007

(soil/water) WATER

Lab Sample ID: 155007

vol: 5.0 (g/mL) ML

Lab File ID: E0650

(low/med) LOW

Date Received: 08/27/90

re: not dec.

Date Analyzed: 08/30/90

(pack/cap) CAP

Dilution Factor: 1.0

Cs found: 0

CONCENTRATION UNITS:
(ug/L or ug/kg) UG/L

NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
=====	=====	=====	=====	=====

046

037

038

039

040

1A VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HK037

: SWL-TULSA

Contract: 5511HQ10

: SWOK Case No.: 14772

SAS No.: 55110

SDG No.: HK017

(soil/water) WATER

Lab Sample ID: 755108

it/vol: 5.0 (g/mL) ML

Lab File ID: E2651

(low/med) LOW

Date Received: 08/27/90

ire: not dec.

Date Analyzed: 08/30/90

(pack/cap) CAP

Dilution Factor: 1.0

CAS NO.

COMPOUND

CONCENTRATION UNITS:

(ug/L or ug/kg) UG/L

Q

74-87-3-----	Chloromethane	10	UU
74-83-9-----	Bromomethane	10	UU
75-01-4-----	Vinyl Chloride	10	UU
75-00-3-----	Chloroethane	10	UU
75-09-2-----	Methylene Chloride	5	UU
57-64-1-----	Acetone	10	UU
75-15-0-----	Carbon Disulfide	5	UU
75-35-4-----	1,1-Dichloroethene	5	UU
75-34-3-----	1,1-Dichloroethane	5	UU
540-59-0-----	1,2-Dichloroethene (total)	5	UU
67-66-3-----	Chloroform	5	UU
107-06-2-----	1,2-Dichloroethane	5	UU
78-93-3-----	2-Butanone	10	UU
71-55-6-----	1,1,1-Trichloroethane	5	UU
56-23-5-----	Carbon Tetrachloride	5	UU
108-05-4-----	Vinyl Acetate	10	UU
75-27-4-----	Bromodichloromethane	5	UU
78-87-5-----	1,2-Dichloropropane	5	UU
10061-01-5-----	cis-1,3-Dichloropropene	5	UU
79-01-6-----	Trichloroethene	5	UU
124-48-1-----	Dibromochloromethane	5	UU
79-00-5-----	1,1,2-Trichloroethane	5	UU
71-43-2-----	Benzene	5	UU
10061-02-6-----	Trans-1,3-Dichloropropene	5	UU
75-25-2-----	Bromoform	5	UU
108-10-1-----	4-Methyl-2-Pentanone	10	UU
591-78-6-----	2-Hexanone	10	UU
127-18-4-----	Tetrachloroethene	5	UU
79-34-5-----	1,1,2,2-Tetrachloroethane	5	UU
108-88-3-----	Toluene	5	UU
108-90-7-----	Chlorobenzene	5	UU
100-41-4-----	Ethylbenzene	5	UU
100-42-5-----	Styrene	5	UU
1330-20-7-----	xylene (total)	5	UU

046

037

038

039

045

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HK037

SW-TULSA

Contract: 5511HQ10

SWOK

Case No.: 14772

SAS No.: 5511Q

SDG No.: HK027

Lab Sample ID: 555308

Lab File ID: 62651

Date Received: 08/27/90

Date Analyzed: 08/30/90

Dilution Factor: 1.0

(soil/water) WATER

/vol: 5.0 (g/mL) ML

(low/med) LOW

e: not dec.

(pack/cap) CAP

CONCENTRATION UNITS:
(ug/L or ug/kg) UG/L

ICs found: 0

NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
=====	=====	=====	=====	=====

046

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1A VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HN038

051
046

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045

SWL-TULSA

Contract: 5511H010

SWOK

Case No.: 14772

SAS No.: 55110

SDG No.: HK027

oil/water) WATER

Lab Sample ID: 555205

vol: 5.0 (ug/mL) ML

Lab File ID: E2652

(low/med) LOW

Date Received: 08/27/90

: not dec.

Date Analyzed: 08/30/90

pack/cap) GAP

Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

NO.	COMPOUND		
87-3	Chloromethane	10	U
85-5	Bromomethane	10	U
01-4	vinyl Chloride	10	U
00-3	Chloroethane	10	U
09-2	Methylene Chloride	50	U
64-1	Acetone	50	U
15-0	Carbon Disulfide	50	U
35-4	1,1-Dichloroethene	50	U
34-3	1,1-Dichloroethane	50	U
059-0	1,2-Dichloroethene (total)	50	U
66-3	Chloroform	50	U
7-06-2	1,2-Dichloroethane	50	U
93-3	2-Butanone	10	U
55-6	1,1,1-Trichloroethane	50	U
23-5	Carbon Tetrachloride	50	U
5-05-4	Vinyl Acetate	10	U
27-4	Bromodichloromethane	50	U
87-5	1,2-Dichloropropane	50	U
061-01-5	cis-1,3-Dichloropropene	50	U
01-6	Trichloroethene	50	U
4-48-1	Dibromochloromethane	50	U
00-5	1,1,2-Trichloroethane	50	U
43-2	Benzene	50	U
061-02-6	Trans-1,3-Dichloropropene	50	U
25-2	Bromoform	50	U
8-10-1	4-Methyl-2-Pentanone	10	U
1-78-6	2-Hexanone	10	U
7-18-4	Tetrachloroethene	50	U
34-5	1,1,2,2-Tetrachloroethane	50	U
8-88-7	Toluene	50	U
8-90-7	Chlorobenzene	50	U
0-41-4	Ethylbenzene	50	U
0-42-5	Styrene	50	U
00-20-7	xylene (total)	50	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HK073

SWL-TULSA

Contract: 5511HQ10

SWDP

Case No.: 14772

SAS No.: 55110

SDG No.: 44017

(soil/water) WATER

Lab Sample ID: 555015

wt/vol: 5.0 (g/mL) ML

Lab File ID: 52852

(low/med) LDW

Date Received: 08/27/90

ure: not dec.

Date Analyzed: 08/31/90

(pack/cap) CAP

Dilution Factor: 1.0

CONCENTRATION UNITS:

(ug/L or ug/kg) UG/L

TICs found: 0

NUMBER	COMPOUND NAME	RT	EST. CONC.
=====	=====	=====	=====

0461

0411

010

0541

070

4.029

TULSA

Contract: 5511HQ10

SDG No. : 4005

Case No. : 14772

SAS No. : 55112

SDG No. : 4065

1/water) WATER

Lab Sample ID: 755710

1000

Lab File ID: ED653

low/med) LOW

Date Received: 08/27/90

not dec.

Date Analyzed: 08/30/90

(back/cad) CAP

Dilution Factor: 1.0

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/kg) UG/L

NO.

4-67-3	Chloroethane	10	10
4-63-9	Bromomethane	10	10
5-01-4	vinyl Chloride	10	10
5-00-3	Chloroethane	10	10
5-09-2	Methylene Chloride	10	10
7-64-1	Acetone	10	10
5-15-0	Carbon Disulfide	10	10
15-35-4	1,1-Dichloroethene	10	10
15-34-3	1,1-Dichloroethane	10	10
540-59-0	1,2-Dichloroethene (total)	10	10
57-66-3	Chloroform	10	10
107-06-2	1,2-Dichloroethane	10	10
78-93-3	Butanone	10	10
71-55-6	1,1,1-Trichloroethane	10	10
26-23-5	Carbon Tetrachloride	10	10
108-05-4	vinyl Acetate	10	10
75-27-4	Bromodichloromethane	10	10
76-87-5	1,2-Dichloropropane	10	10
10061-01-5	cis-1,3-Dichloropropene	10	10
79-01-6	Trichloroethene	10	10
124-48-1	Dibromochloromethane	10	10
79-00-5	1,1,2-Trichloroethane	10	10
71-43-2	Benzene	10	10
10061-02-5	Trans-1,3-Dichloropropene	10	10
75-25-2	Bromoform	10	10
108-10-1	4-methyl-2-pentanone	10	10
591-78-6	Hexanone	10	10
127-18-4	Tetrachloroethene	10	10
79-34-5	1,1,1,2-Tetrachloroethane	10	10
108-88-7	Toluene	10	10
108-90-7	Chlorobenzene	10	10
100-41-4	Ethylbenzene	10	10
100-42-5	Styrene	10	10
1220-20-7	Styrene (total)	10	10

046

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Name: SWL-TULSA

Contract: 5511HQ10

4009

Lab Code: SWOK

Case No.: 14772

SAS No.: 55110

SDG No.: 40027

Matrix: (soil/water) WATER

Lab Sample ID: 355110

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: 55657

Well: (low/med) LOW

Date Received: 08/27/90

Moisture: not dec.

Date Analyzed: 08/28/90

Column: (pack/cab) CAP

Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	AT	EST. CONC.	0
=====	=====	=====	=====	=====

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Name: SWL-TULSA

Contract: 5511H010

HR 045

Code: SWOH

Case No.: 14772

SAS No.: 55110

SDG No.: 44027

Matrix (soil/water): WATER

Lab Sample ID: 35511

Conc. (wt/vol): 5.0 g/mL / ML

Lab File ID: 52454

Temp. (low/med): LOW

Date Received: 08/07/90

Storage: not dec.

Date Analyzed: 08/17/90

Seal (pack/cap): CAP

Dilution Factor: 1.0

CAS NO.

COMPOUND

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

Q

74-27-3	Chloromethane	10	1
74-83-9	Bromomethane	10	1
75-01-4	Vinyl Chloride	10	1
75-00-3	Chloroethane	10	1
75-09-2	Methylene Chloride	5	1
67-64-1	Acetone	10	1
75-15-0	Carbon Disulfide	5	1
75-35-4	1,1-Dichloroethene	5	1
75-34-3	1,1-Dichloroethane	5	1
540-59-0	1,2-Dichloroethene (total)	5	1
67-66-3	Chloroform	5	1
107-06-2	1,2-Dichloroethane	5	1
78-93-3	2-Butanone	10	1
71-55-6	1,1,1-Trichloroethane	5	1
56-23-5	Carbon Tetrachloride	5	1
108-05-4	Vinyl Acetate	10	1
75-27-4	Bromodichloromethane	5	1
78-87-5	1,2-Dichloropropane	5	1
10061-01-5	cis-1,3-Dichloropropene	5	1
79-01-6	Trichloroethene	5	1
124-48-1	Dibromochloromethane	5	1
79-00-5	1,1,2-Trichloroethane	5	1
71-43-2	Benzene	5	1
10061-02-6	Trans-1,3-Dichloropropene	5	1
75-25-2	Bromoform	5	1
108-10-1	4-Methyl-2-Pentanone	10	1
591-78-6	2-Hexanone	10	1
127-18-4	Tetrachloroethene	5	1
79-34-5	1,1,2,2-Tetrachloroethane	5	1
108-88-3	Toluene	5	1
108-90-7	Chlorobenzene	5	1
100-41-4	Ethylbenzene	5	1
100-42-5	Styrene	5	1
1330-20-7	Xylene (total)	5	1

046
0411
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0411
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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

TULSA Contract: 5511HQ10 HR045
 Case No.: 14772 SAS No.: 5511Q SDG No.: HK027
 (oil/water) WATER Lab Sample ID: 555311
 1: 5.0 (g/mL) ML Lab File ID: 52454
 low/med) LOW Date Received: 08/27/90
 not dec. Date Analyzed: 08/30/90
 act/cap) CAP Dilution Factor: 1.0

Found: 0 CONCENTRATION UNITS:
 (ug/L or ug/Kg) UG/L

RT	COMPOUND NAME	RT	EST. CONC.
=====	=====	=====	=====
=====	=====	=====	=====

056
150
046057
150
047052
048051
049

050

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPL

40045

Name: SWL-TULSA Contract: 5511HQ10
 Code: SWOH Case No.: 14772 SAS No.: 55112 SDG No.: 40045
 Matrix: (soil/water) SOIL Lab Sample ID: 155712
 Sample wt/vol: 5.0 (g/mL) G Lab File ID: 14650
 Concentration: (low/med) LOW Date Received: 08/27/90
 Disturbance: not dec. NO Date Analyzed: 09/04/90
 Container: (back/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/kg) UG/KG

CAS NO. COMPOUND

74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-3	Methylen Chloride	11	U
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,2-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	Trans-1,2-Dichloropropene	11	U
75-25-2	Bromotorm	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-3	3-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-8	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

98045

SWL-TULSA Contract: 5511HQ10
 SWOL Case No.: 14772 SAS No.: 55110 SDG No.: 44227
 (soil/water) SOIL Lab Sample ID: 755712
 wt/vol: 5.0 g/mL 2 Lab File ID: 14650
 (low/med) LOW Date Received: 08/27 90
 are: not dec. 22 Date Analyzed: 09/04 90
 (pack/cap) CAP Dilution Factor: 1.0

TICs found: 2

CONCENTRATION UNITS:
 ug/L or ug/kg 06/12

NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====

0471
 048
 049
 050

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NR047

Lab Name: SWL-TULSA Contract: 5511HQ10
Lab Code: SWOK Case No.: 14772 SAS No.: 55110 SDG No.: HF027
Matrix: (soil/water) WATER Lab Sample ID: 755017
Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 52655
Level: (low/med) LOW Date Received: 08/27/90
Moisture: not dec. Date Analyzed: 09/10/90
Column: (pack/cab) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) <u>UG/L</u>	Q
74-87-7	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-2	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
108-05-4	Vinyl Acetate	10	U
75-07-4	Bromodichloromethane	10	U
78-27-5	1,2-Dichloropropane	10	U
10061-01-3	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-00-2	Trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-2	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

HFOAT

ANALYST: ML-TULSA Contract: 5511HC10
 DATE: SWOH Case No.: 14772 SAS No.: 55110 EDG No.: 11127
 : (solid/water) WATER Lab Sample ID: 155317
 Volume: 5.0 (g/mL) ML Lab File ID: ED355
 (low/med) LOW Date Received: 08/27/90
 Date Analyzed: 08/27/90
 Date: not dec. _____ Dilution Factor: 1.0
 (pack/cap) CAP

CONCENTRATION UNITS:
µg/L or µg/kg: µg/L

TICs found: 1

NUMBER	COMPOUND NAME	RT	EST. CONC.	D
=====	=====	=====	=====	=====
=====	=====	=====	=====	=====

051

052

048

047

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

41048

SWL-TULSA Contract: 5511R010
SWOM Case No.: 14772 BAS No.: 55110 SDG No.: 41027
(soil/water) SOIL Lab Sample ID: 155714
t/vol: 5.0 g/mL / g Lab File ID: 14661
(low/med) LOW Date Received: 08/27/90
re: not dec. 20 Date Analyzed: 09/04/90
(pack/cap) CAP Dilution Factor: 1.0

AS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/kg) UG/L G

4-87-3	Chloromethane	12	10
4-83-5	Bromomethane	12	10
5-01-4	Vinyl Chloride	12	10
5-00-3	Chloroethane	12	10
5-09-2	Methylene Chloride	7	10
7-64-1	Acetone	12	10
75-15-0	Carbon Disulfide	6	10
75-35-4	1,1-Dichloroethene	6	10
75-34-3	1,1-Dichloroethane	6	10
540-59-0	1,2-Dichloroethene (total)	6	10
67-66-3	Chloroform	6	10
107-06-2	1,2-Dichloroethane	6	10
78-93-5	2-Butanone	12	10
71-55-6	1,1,1-Trichloroethane	6	10
56-23-5	Carbon Tetrachloride	6	10
108-05-4	Vinyl Acetate	12	10
75-27-4	Bromodichloromethane	6	10
78-87-5	1,2-Dichloropropane	6	10
10061-01-5	cis-1,3-Dichloropropene	6	10
79-01-6	Trichloroethene	6	10
124-48-1	Dibromochloromethane	6	10
79-00-5	1,1,2-Trichloroethane	6	10
71-43-2	Benzene	6	10
10061-02-5	Trans-1,3-Dichloropropene	6	10
75-25-2	Bromoform	6	10
108-10-1	4-Methyl-2-Pentanone	12	10
591-78-8	2-Hexanone	12	10
127-18-4	Tetrachloroethene	6	10
78-74-5	1,1,1,2-Tetrachloroethane	6	10
108-88-7	Toluene	6	10
108-90-7	Chlorobenzene	6	10
100-41-4	Ethylbenzene	6	10
100-42-5	Styrene	6	10
1330-20-7	Xylene (total)	6	10

051
052
048
049
050

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HK045

WL-TULSA

Contract: 5511HQ10

SWOK

Case No.: 14772

SAS No.: 5511Q

SDG No.: 1-027

(soil/water) SOIL

Lab Sample ID: 355214

wt/vol: 5.0 (g/mL) 6

Lab File ID: 14621

(low/med) LOW

Date Received: 08/27/90

ature: not dec. 20

Date Analyzed: 09/14/90

(pack/cap) CAP

Dilution Factor: 1.0

TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) 06/KG

NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HK047

SWL-TULSA

Contract: 5511HQ10

SWOK

Case No.: 14772

SAS No.: 5511Q

SDG No.: H0027

(soil/water) WATER

Lab Sample ID: 555015

wt/vol: 5.0 (g/mL) ML

Lab File ID: 50456

(low/med) LOW

Date Received: 08/27/80

ure: not dec.

Date Analyzed: 08/30/80

(pack/cap) CAP

Dilution Factor: 1.0

CAS NO.

COMPOUND

CONCENTRATION UNITS:

(ug/L or ug/Kg) US/L

CAS NO.	COMPOUND	CONCENTRATION UNITS:
74-87-3	Chloromethane	10 10
74-83-6	Bromomethane	10 10
75-01-4	Vinyl Chloride	10 10
75-00-3	Chloroethane	10 10
75-09-2	Methylene Chloride	11 10
67-64-1	Acetone	10 10
75-15-0	Carbon Disulfide	10 10
75-35-4	1,1-Dichloroethene	10 10
75-34-3	1,1-Dichloroethane	10 10
540-59-0	1,2-Dichloroethene (total)	10 10
67-66-3	Chloroform	10 10
107-06-2	1,2-Dichloroethane	10 10
78-93-3	2-Butanone	10 10
71-55-6	1,1,1-Trichloroethane	10 10
56-23-5	Carbon Tetrachloride	10 10
108-05-4	Vinyl Acetate	10 10
75-27-4	Bromodichloromethane	10 10
78-87-5	1,2-Dichloropropane	10 10
10061-01-5	cis-1,2-Dichloropropene	10 10
79-01-6	Trichloroethene	10 10
124-48-1	Dibromochloromethane	10 10
79-00-5	1,1,2-Trichloroethane	10 10
71-43-2	Benzene	10 10
10061-02-5	Trans-1,2-Dichloropropene	10 10
75-25-2	Bromoform	10 10
108-10-1	4-Methyl-2-Pentanone	10 10
591-78-6	2-Hexanone	10 10
127-18-4	Tetrachloroethene	10 10
79-34-5	1,1,2,2-Tetrachloroethane	10 10
108-88-1	Toluene	10 10
108-90-7	Chlorobenzene	10 10
100-41-4	Ethylbenzene	10 10
100-42-5	Styrene	10 10
1330-20-7	Xylene (total)	10 10

FORM 1 VOA

075
1/87 Rev.

051

052

047

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HF049

WL-TULSA

Contract: 55114010

SWOK

Case No.: 14772

SAS No.: 55110

SDS No.: HF017

oil/water/ WATER

Lab Sample ID: 555315

vol: 5.0 (g/mL) ML

Lab File ID: 62856

(low/med) LOW

Date Received: 08/27/90

not dec.

Date Analyzed: 09/10/90

(pack/cap) CAP

Dilution Factor: 1.0

CONCENTRATION UNITS:

(ug/L or ug/g) ug/L

Ps found: 0

NUMBER	COMPOUND NAME	RT	EST. CONC.
=====	=====	=====	=====
=====	=====	=====	=====

051

052

053

054

050

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Name: SWL-TULSA

Contract: 5511HQ10

-R050

Code: SWOK

Case No.: 14772

SAS No.: 55110

SDG No.: HK027

Matrix (soil/water): SOIL

Lab Sample ID: 55571a

Moisture wt/vol: 2.0 (g/mL) 5

Lab File ID: 14a22

Moisture (low/med): LOW

Date Received: 08/27/90

Moisture: not dec. 20

Date Analyzed: 09/04/90

Moisture (pack/cap): CAP

Dilution Factor: 1.0

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/kg) UG/LG

Q

74-87-3	-----Chloromethane	12	U
74-83-9	-----Bromomethane	12	U
75-01-4	-----Vinyl Chloride	12	U
75-00-3	-----Chloroethane	12	U
75-09-2	-----Methylen Chloride	12	U
67-64-1	-----Acetone	12	U
75-15-0	-----Carbon Disulfide	6	U
75-35-4	-----1,1-Dichloroethene	6	U
75-34-3	-----1,1-Dichloroethane	6	U
540-59-0	-----1,2-Dichloroethene (total)	6	U
67-66-3	-----Chloroform	12	U
107-06-2	-----1,2-Dichloroethane	6	U
78-93-3	-----2-Butanone	12	U
71-55-6	-----1,1,1-Trichloroethane	6	U
56-23-5	-----Carbon Tetrachloride	12	U
108-05-4	-----Vinyl Acetate	12	U
75-27-4	-----Bromodichloromethane	6	U
78-87-5	-----1,2-Dichloropropane	6	U
10061-01-5	-----cis-1,3-Dichloropropene	6	U
79-01-6	-----Trichloroethene	6	U
124-48-1	-----Dibromochloromethane	6	U
79-00-5	-----1,1,2-Trichloroethane	6	U
71-43-2	-----Benzene	6	U
10061-02-6	-----Trans-1,3-Dichloropropene	6	U
75-25-2	-----Bromoform	6	U
108-10-1	-----4-Methyl-2-Pentanone	12	U
591-78-5	-----2-Hexanone	12	U
127-18-4	-----Tetrachloroethene	6	U
79-34-6	-----1,1,1,2-Tetrachloroethane	6	U
108-88-7	-----Toluene	6	U
108-90-7	-----Chlorobenzene	6	U
100-41-4	-----Ethylbenzene	6	U
100-42-5	-----Styrene	6	U
1330-20-7	-----Xylene (total)	6	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

4050

Site: SWL-TULSA

Contract: 551HQ10

Code: SWOM

Case No.: 14772

EAS No.: 55110

SDG No.: PK027

Matrix (soil/water): SDIL

Lab Sample ID: T55215

Sample wt/vol: 5.0 (g/mL) 5

Lab File ID: 14560

Level: (low/med) LOW

Date Received: 12/27/90

Moisture: not dec. 20

Date Analyzed: 1/24/91

Location (pack/cap): CAP

Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/g) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.
=====	=====	=====	=====

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE

NAME: SWL-TULSA Contract: 5511H010
 Code: SWOW Case No.: 14770 SAS No.: 55110 SDB No.: HL027
 Matrix (soil/water): WATER Lab Sample ID: 755017
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 62664
 Temp: (low/med): LOW Date Received: 08/27/90
 Mixture: not dec. _____ Date Analyzed: 08/31/90
 Solvent: (pack/cap): CAP Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/g) UG/L

CAS NO.	COMPOUND	U
74-87-3	Chloromethane	10 U
74-87-5	Bromomethane	10 U
75-01-4	Vinyl Chloride	10 U
75-00-3	Chloroethane	10 U
75-09-2	Methylene Chloride	10 U
67-64-1	Acetone	10 U
75-15-0	Carbon Disulfide	10 U
75-35-4	1,1-Dichloroethene	10 U
75-34-3	1,1-Dichloroethane	10 U
540-59-0	1,2-Dichloroethene (total)	10 U
67-66-3	Chloroform	10 U
107-06-2	1,2-Dichloroethane	10 U
78-93-3	2-Butanone	10 U
71-55-6	1,1,1-Trichloroethane	10 U
56-23-5	Carbon Tetrachloride	10 U
108-05-4	Vinyl Acetate	10 U
75-27-4	Bromodichloromethane	10 U
78-87-5	1,2-Dichloropropane	10 U
10061-01-3	cis-1,2-Dichloropropene	10 U
79-01-6	Trichloroethene	10 U
124-48-1	Dibromochloromethane	10 U
79-00-5	1,1,2-Trichloroethane	10 U
71-43-2	Benzene	10 U
10061-02-5	Trans-1,2-Dichloropropene	10 U
75-25-3	Bromoform	10 U
108-10-1	4-Methyl-2-Pentanone	10 U
591-78-2	2-Hexanone	10 U
127-18-4	Tetrachloroethene	10 U
79-34-8	1,1,2,2-Tetrachloroethane	10 U
108-88-3	Toluene	10 U
108-90-7	Chlorobenzene	10 U
100-41-4	Ethylbenzene	10 U
100-42-5	Styrene	10 U
1330-20-7	Xylene (total)	10 U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

100 SAMPLE NO.

051

Site: SWL-TULSA Contract: 55114010
Code: SWOK Case No.: 14770 SAS No.: 55110 EDG No.: 14007
Matrix (soil/water): WATER Lab Sample ID: 55517
Moist wt/vol: 5.0 g/mL / ML Lab File ID: 55524
Well: (low/med) LOW Date Received: 12/07/90
Moisture: not dec. Date Analyzed: 12/01/90
Dilution Factor: 1.0
Pack (pack/cap) CAP

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 2

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	D
=====	=====	=====	=====	=====
=====	=====	=====	=====	=====

039

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LAB NO.

SWL-TULSA

Contract: 5511HD10

SWOK Case No.: 14770

SAS No.: 55110

EDG No.: 44417

soil/water: WATER

Lab Sample ID: 55110

wt/vol: 2.0 g/mL ML

Lab File ID: 55110

(low/med) LOW

Date Received: 08/27/90

disture: not dec.

Date Analyzed: 08/30/90

(pack/cap) CAP

Dilution Factor: 1.0

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/kg) UG/L 0

74-87-3	Chloromethane	10	U
74-83-6	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-3	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-2	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,2-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	Trans-1,2-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-2	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-1	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

092

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SPR 1000-11
REV 11

SWL-TULSA Contract: 55119010

Code: SWOH Case No.: 14772 SAS No.: 55110 SDG No.: 4007

Matrix: (soil/water) WATER Lab Sample ID: 755718

Le wt/vol: 5.0 g/mL: mL Lab File ID: 50518

Conc: (low/med) LOW Date Received: 08-27-90

Dist: not dec. Date Analyzed: 08-29-90

Conc: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS:
µg/L or µg/kg or µg/g

Net TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SPR SAMPLE NO.

0050

Name: SWL-TULSA Contract: 55110D10
Code: SWOF Case No.: 14772 SAS No.: 55110 SDG No.: 4-007
Matrix (soil/water): SOIL Lab Sample ID: 555110
Sample wt/vol: 5.0 (g/mL) 5 Lab File ID: 14680
Solubility (low/med): LOW Date Received: 08/27/90
Moisture: not dec. 12 Date Analyzed: 09/14/90
Container (pack/cap): CAP Dilution Factor: 1.1

CONCENTRATION UNITS:
(ug/L or ug/kg) ug/kg

CAS NO.

COMPOUND

74-87-3	Chloromethane	11	-
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Ethylene Chloride	11	U
67-64-1	Acetone	6	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	6	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	11	U
108-05-4	Vinyl Acetate	6	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,2-Dichloropropane	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	Trans-1,2-Dichloropropane	6	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-4	2-Hexanone	6	U
127-18-4	Tetrachloroethene	6	U
79-04-5	1,1,1,2-Tetrachloroethane	6	U
108-88-7	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylene (total)	6	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HN057

SWL-TULSA

Contract: 5511HDAW

SWOL

Case No.: 14772

SAS No.: 5511D

SDG No.: 14057

(soil/water) SOIL

Lab Sample ID: 5551A

wt/vol: 5.0 (g/mL) 5

Lab File ID: 14057

(low/med) LOW

Date Received: 08/27/80

pure: not dec. 12

Date Analyzed: 09/14/80

(pack/cap) CAP

Dilution Factor: 1.0

TICs found: 12

CONCENTRATION UNITS:
(ug/L or ug/kg) ug/kg

NUMBER	COMPOUND NAME	RT	EST. CONC.
=====	=====	=====	=====

054

050

1A VOLATILE ORGANICS ANALYSIS DATA SHEET

7-054

Name: SWL-TULSA

Contract: 5511H010

Code: SWOK

Case No.: 14772

SAS No.: 55110

SDS No.: H1007

Matrix (soil/water): SOIL

Lab Sample ID: 755104

Moisture wt/vol: 2.0 (g/mL) 0

Lab File ID: 14884

Level (low/med): LOW

Date Received: 12/17/90

Moisture: not dec. 01

Date Analyzed: 12/24/90

Amount (pack/bag): 100

Dilution Factor: 1.1

CONCENTRATION UNITS:
(ug/L or ug/kg) UG/KG

CAS NO.

COMPOUND

74-87-3	Chloromethane	11	U
74-83-8	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-3	Methylsulfide	11	U
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-5	Trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-7	Toluene	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

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FORM 1 VOA

1/87 Rev.

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EP- SAMPLE NO.

Site: SWL-TULSA Contract: 5511HQ10
Code: SWOL Case No.: 14772 SAS No.: 5511Q SDG No.: 49027
Media: (soil/water) SOIL Lab Sample ID: 55571
Conc: (low/med) LOW Lab File ID: 14884
Dist: (low/med) LOW Date Received: 05-07-90
Disture: not dec. 21 Date Analyzed: 08-04-90
Con: (pack/cap) CAP Dilution Factor: 1

CONCENTRATION-UNITS:
(ug/L or ug/Kg) USAMS

Number TICs found: 11

CAS NUMBER	COMPOUND NAME	RT	EST. INC.	D
=====	=====	=====	=====	=====
=====	=====	=====	=====	=====

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

334 SAMPLE NO.

1055

Name: BWL-TULSA Contract: 5511H010
 Code: BW01 Case No.: 14772 SAS No.: 55110 SDG No.: 40027
 Matrix: (soil/water) SOIL Lab Sample ID: 155721
 Sample wt/vol: 5.0 (g/mL) S Lab File ID: 14585
 Dilution: (low/med) LOW Date Received: 12/07/90
 Moisture: not dec. 5 Date Analyzed: 12/04/90
 Method: (back/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/kg) ug/kg

CAS NO.	COMPOUND		
74-87-5	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-1	Methylene Chloride	11	U
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	11	U
78-67-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-46-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	Trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
51-78-3	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	11	U
105-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

4-055

Name: EWL-TULSA Contract: 5511H010
 Code: SWD Case No.: 14772 SAS No.: 55110 BDG No.: 1-057
 Matrix: (soil/water) SOIL Lab Sample ID: 555121
 Sample wt/vol: 5.0 (g/mL) 5 Lab File ID: 5-55
 Level: (low/med) LOW Date Received: 12/07/90
 Moisture: not dec. 5 Date Analyzed: 12/04/90
 Column (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS:
 (ug/L or ug/kg) ug/L

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST.	CONC.	C
=====	=====	=====	=====	=====	=====
=====	=====	=====	=====	=====	=====

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE

Lab Name: SWL-TULSA Contract: 5511HQ10 HFO56
Lab Code: SWCH Case No.: 14772 SAS No.: 55110 SDG No.: HF007
Matrix: (soil/water) SOIL Lab Sample ID: 555200
Sample wt/vol: 5.0 (g/mL) (g) Lab File ID: 14686
Level: (low/med) LOW Date Received: 08/27/90
% Moisture: not dec. 14 Date Analyzed: 02/04/90
Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO. COMPOUND CONCENTRATION UNITS:
ug/L or ug/g, ug/LB

74-87-3	Chloromethane	10	0
74-83-6	Bromomethane	10	0
75-01-4	Vinyl Chloride	10	0
75-00-3	Chloroethane	10	0
75-09-2	Methylene Chloride	10	0
67-64-1	Acetone	10	0
75-15-0	Carbon Disulfide	6	10
75-35-4	1,1-Dichloroethene	6	10
75-34-3	1,1-Dichloroethane	6	10
540-59-0	1,2-Dichloroethene (total)	6	10
67-66-2	Chloroform	6	10
107-06-2	1,2-Dichloroethane	6	10
78-93-3	2-Butanone	7	0
71-55-6	1,1,1-Trichloroethane	6	10
56-23-5	Carbon Tetrachloride	6	10
108-05-4	Vinyl Acetate	10	0
75-27-4	Bromodichloromethane	6	10
78-87-5	1,2-Dichloropropane	6	10
10061-01-5	cis-1,3-Dichloropropene	6	10
79-01-6	Trichloroethene	6	10
124-48-1	Dibromochloromethane	6	10
79-00-5	1,1,2-Trichloroethane	6	10
71-43-2	Benzene	6	10
10061-02-6	Trans-1,3-Dichloropropene	6	10
75-25-2	Bromoform	6	10
108-10-1	4-Methyl-2-Pentanone	10	10
591-78-6	2-Hexanone	10	10
127-18-4	Tetrachloroethene	6	10
78-74-2	1,1,1,2-Tetrachloroethane	6	10
108-88-7	Toluene	6	10
108-90-7	Chlorobenzene	6	10
100-41-4	Ethylbenzene	6	10
100-42-5	Styrene	6	10
1330-20-7	Xylene (total)	6	10

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO:

Lab Name: SWL-TULSA Contract: 55114010 HPLC: _____
 Lab Code: EWDP Case No.: 14772 SAS No.: 55110 SDG No.: HK007
 Matrix: (soil/water) SOIL Lab Sample ID: 755222
 Sample wt/vol: 5.0 (g/mL) 5 Lab File ID: 14586
 Level: (low/med) LOW Date Received: 08/27/90
 % Moisture: not dec. 14 Date Analyzed: 09/04/90
 Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/kg) same

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Lab Name: SWL-TULSA Contract: 5511H010 #K057
Lab Code: SWOK Case No.: 14772 SAS No.: 55110 SDS No.: 4K027
Matrix: (soil/water) SOIL Lab Sample ID: 555555
Sample wt/vol: 5.0 (g/mL) 5 Lab File ID: 14687
Level: (low/med) LOW Date Received: 08/27/90
% Moisture: not dec. 7 Date Analyzed: 05/04/90
Column: (pack/cap) GAP Dilution Factor: 1.0

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/g) UG/L

Q

74-87-5	Chloromethane	11	U
74-83-5	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-08-2	Methylene Chloride	11	U
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	11	U
73-67-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	Trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-1	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
75-31-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

-1087

Name: BWL-TULSA Contract: 5511H010
Lab Code: SWOH Case No.: 14772 SAS No.: 55110 SDG 5.1 #027
Matrix: (soil/water) SOIL Lab Sample ID: 755227
Sample wt/vol: 5.0 (g/mL) 5 Lab File ID: 14687
Level: (low/med) LOW Date Received: 08/27/90
Moisture: not dec. 7 Date Analyzed: 09/04/90
Column (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS:
ug/L or ug/kg UG/L

Number TICs found: 9

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	D
1.	ALKYL BENZENE	13.80	5.410	
2.	ALKYL BENZENE	13.77	3.210	
3.	ALKYL BENZENE	14.05	3.210	
4.	ALKYL BENZENE	14.99	3.210	
5.	ALKYL BENZENE	15.52	5.410	
6.	ALKYL BENZENE	15.65	5.610	
7.	ALKYL BENZENE	16.10	5.410	
8.	ALKYL BENZENE	16.24	5.610	

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EP4 SAMPLE NO.

Lab Name: SWL-TULSA Contract: EE11H010 H-053
Lab Code: EWOP Case No.: 14772 SAS No.: EE110 SDG No.: HF027
Matrix: (soil/water) WATER Lab Sample ID: EE5724
Sample wt/vol: 5.0 (g/mL) ML Lab File ID: EE565
Level: (low/med) LOW Date Received: 08/27/90
% Moisture: not dec. Date Analyzed: 09/11/90
Column (pack/cap) CAP Dilution Factor: 1.0

Number TICS Found: 0

CONCENTRATION UNITS:
(ug/L or ug/kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Location: SWL-TULSA

Contract: 5511HQ10

7-059

Code: SWOW

Case No.: 14772

SAS No.: 5511Q

SDG No.: HK027

Matrix: (soil/water) WATER

Lab Sample ID: 755324

File wt/vol: 5.0 (g/mL) ML

Lab File ID: 50225

Level: (low/med) LOW

Date Received: 08/27/90

Disturbance: not dec.

Date Analyzed: 08/31/90

Amount: (pack/cap) CAP

Dilution Factor: 1.0

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/kg) UG/L

Q

74-87-3	Chloromethane	10	U
74-87-3	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylen Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	Trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-3	1,1,2,2-Tetrachloroethane	10	U
108-88-1	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HK027

Name: SWL-TULSA Contract: 5511HQ10
 Code: SWOK Case No.: 14772 SAS No.: 55110 SDG No.: HK027
 Matrix: (soil/water) SDIL Lab Sample ID: 355306
 Sample wt/vol: 30.0 (g/mL) 6 Lab File ID: FA028
 Level: (low/med) LOW Date Received: 08/27/90
 Moisture: not dec. 9 dec. Date Extracted: 08/29/90
 Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 09/20/90
 RC Cleanup: (Y/N) Y pH: 7.9 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u>	<u>Q</u>
108-95-2	Phenol	730	U
111-44-4	bis(2-Chloroethyl)Ether	730	U
95-57-8	2-Chlorophenol	730	U
541-73-1	1,3-Dichlorobenzene	730	U
106-46-7	1,4-Dichlorobenzene	730	U
100-51-6	Benzyl Alcohol	730	U
95-50-1	1,2-Dichlorobenzene	730	U
95-48-7	2-Methylphenol	730	U
108-60-1	bis(2-Chloroisopropyl)Ether	730	U
106-44-5	4-Methylphenol	730	U
621-64-7	N-Nitroso-Di-n-Propylamine	730	U
67-72-1	Hexachloroethane	730	U
98-95-3	Nitrobenzene	730	U
78-59-1	Isophorone	730	U
88-75-5	2-Nitrophenol	730	U
105-67-9	2,4-Dimethylphenol	730	U
65-85-0	Benzoic Acid	3500	U
111-91-1	bis(2-Chloroethoxy)Methane	730	U
120-83-2	2,4-Dichlorophenol	730	U
120-82-1	1,2,4-Trichlorobenzene	730	U
91-20-3	Naphthalene	730	U
106-47-9	4-Chloroaniline	730	U
87-68-3	Hexachlorobutadiene	730	U
59-50-7	4-Chloro-3-Methylphenol	730	U
91-57-6	2-Methylnaphthalene	730	U
77-47-4	Hexachlorocyclopentadiene	730	U
88-06-2	2,4,6-Trichlorophenol	730	U
95-55-4	2,4,6-Trichlorophenol	3500	U
91-55-7	2-Chloronaphthalene	730	U
98-74-4	2-Nitroaniline	3500	U
131-11-3	Dimethyl Phthalate	730	U
208-96-8	Acenaphthylene	730	U
606-20-2	2,6-Dinitrotoluene	730	U

APPENDIX E
RAW DATA SHEETS

REGION VIII SUMMARY OF DATA QUALITY ASSURANCE REVIEW

Case No.: 14772

TDD No.: F08-9005-08

Site: Bitterroot Valley Sanitary Landfill

Contractor Laboratory: Skinner and Sherman Laboratories Inc.

Data Reviewer : Christopher Sundeen ⁶ Date of Review: Nov. 19, 1990.

Sample Matrix: Twenty-Six (26) Water Samples.

ANALYSIS: HSL Metals

Sample Nos.: This review consists of two (2) quality control groups.

QC GROUP I contains samples:

MHT 198, MHT 501, MHT 502, MHT 503, MHT 504, MHT 505,
MHT 506, MHT 507, MHT 508, MHT 509, MHT 510, MHT 511,
MHT 512, MHT 513, MHT 514, MHT 515, MHT 516, MHT 517,
MHT 518, MHT 520.

QC GROUP II contains samples:

MHT 522, MHT 523, MHY 668, MHY 670, MHY 672, MHY 678.

- () Data are acceptable for use.
- (X) Data are acceptable for use with qualifications noted.
- () Data are preliminary - pending verification.
- () Data are unacceptable.

Action required by DPO?

No X

Action required by project officer?

No X

REVIEW SUMMARY:

Data are acceptable for use with qualifications noted.

- * All ICVs and CCVs achieved control limit requirements.
- * All standard correlation coefficients (r) are greater than 0.995 with the exception of Arsenic (0.994) and Selenium (0.991) for QC GROUP II. Sample results for these elements are therefore estimated and are flagged "J".
- * All CRDL results are acceptable.
- * All holding time and preservation criteria were met except for sample MHY 672. The Metals and Mercury portion of this sample was preserved to pH 2.5 instead of pH 2.0. However, the data was determined to be unaffected.
- * Several elements had blank concentrations greater than IDL or had negative blank concentrations whose absolute values were greater than IDL. Contaminants were found in blanks associated with the following elements:

	Matrix	Element	Qualifier
QC GROUP I	WATER	Aluminum	U < 220 ul/L
		Barium	U < 22 ul/L
		Calcium	U < 99 ul/L
		Manganese	U < 13 ul/L
		Iron	UJ < IDL
			IDL < J < CRDL
QC GROUP II	WATER	Antimony	U < 66 ul/L
		Magnesium	U < 360 ul/L
		Silver	UJ < IDL
			IDL < J < CRDL
		Zinc	UJ < IDL
			IDL < J < CRDL

- * ICP ICS results for Sodium for QC GROUP I and Antimony and Sodium results for QC GROUP II are outside of control limits. However, there are no samples with comparable amounts of interferents present therefore no qualifications are necessary.

* Matrix spike results for Selenium in QC GROUP I are outside of control limits (32.2%). Selenium results for QC GROUP I are therefore estimated and are qualified "J". All other matrix spike results are within control limits.

* All duplicate results are within control limits.

* All LCS results are acceptable.

* Several samples have GFAA post digestion analytical spikes outside of control limits. Results for these samples are therefore estimated and are qualified with a "J". The following sample results are qualified:

QC GROUP I Selenium: MHP 198, MHP 501, MHP 502, MHP 503, MHP 504,
MHP 506, MHP 507, MHP 508, MHP 509, MHP 510,
MHP 512, MHP 513, MHP 514, MHP 515, MHP 516,
MHP 517, MHP 518, and MHP 520.

Thallium: MHP 198, MHP 502, MHP 503, MHP 504, MHP 505,
MHP 506, MHP 507, MHP 508, MHP 509, MHP 510,
MHP 511, MHP 512, MHP 513, MHP 514, MHP 515,
MHP 516, MHP 517, MHP 518, and MHP 520.

QC GROUP II Arsenic: MHY 670.

Selenium: MHT 522 and MHT 523.

Lead: MHT 523 and MHY 678.

Thallium: MHT 522, MHT 523, MHY 670, MHY 672, and
MHY 678.

* All serial dilution results are acceptable.

1.0 HOLDING TIMES

Holding times are established and monitored to ensure analytical results accurately represent analyte concentrations in a sample at the time of collection. Exceeding the holding time for a sample generally affects a loss of the analyte due to a variety of mechanisms, such as deposition on the sample container walls or precipitation.

REVIEW RESULTS: All holding time and preservation criteria were met for QC GROUP I.

All holding time and preservation criteria were met for QC GROUP II with the exception of sample MHY 672. The Metals and Mercury portion of this sample was preserved to pH 2.5 instead of pH 2.0. However, due to the low concentration of the sample, the data is unaffected.

Holding time and preservation requirements:

Metals: 6 months; preserved to pH < 2

Mercury: 28 days; preserved to pH < 2

Cyanide: 14 days; preserved to pH > 12

2.0 INITIAL AND CONTINUING CALIBRATION VERIFICATION

Initial and continuing calibration verification solutions contain known concentrations of elements being analyzed for and are repeatedly checked throughout a sample batch run. The inability of the lab to perform acceptably on the calibration criteria may indicate that severe problems exist in the laboratory's analytical system. Associated sample data generated under such conditions should be considered suspect.

REVIEW RESULTS: All ICVs and CCVs achieved control limit requirements.

All standard correlation coefficients (r) for QC GROUP I are greater than 0.995.

All standard correlation coefficients (r) for QC GROUP II are greater than 0.995 with the exception of Arsenic and Selenium. For Arsenic $r=0.994$ and for Selenium $r=0.991$. Sample results for these elements are therefore estimated and are qualified "J".

ICV and CCV control limit requirements:

Metals: 90-110 percent Recovery (%R)

Mercury: 80-120 percent Recovery (%R)

Cyanide: 85-115 percent Recovery (%R)

3.0 BLANKS

Laboratory blank samples are analyzed and evaluated to determine the existence and magnitude of possible contamination problems. Generally, if analyte concentrations greater than the CRDL for a given analyte are found in a laboratory blank, it is likely that the analyte is present as a contaminant in some phase of the analysis procedure and associated sample concentrations may be biased high.

REVIEW RESULTS: Several elements had blank concentrations greater than IDL or had negative blank concentrations whose absolute values were greater than IDL.

For elements with blank concentrations greater than IDL:

Sample results greater than the Instrument Detection Limit (IDL) but less than five times the amount in any blank are qualified as undetected, "U".

For elements with negative blank concentrations whose absolute value is greater than IDL:

Sample results between IDL and CRDL are qualified as estimated, "J". Sample results less than IDL are qualified as "UJ" (detection limit is estimated). The possibility of false negatives exist.

Contaminants were found in blanks associated with the following elements:

	Matrix	Element	Qualifier
QC GROUP I	WATER	Aluminum	U < 220 ul/L
		Barium	U < 22 ul/L
		Calcium	U < 99 ul/L
		Manganese	U < 13 ul/L
		Iron	UJ < IDL
			IDL < J < CRDL
QC GROUP II	WATER	Antimony	U < 66 ul/L
		Magnesium	U < 360 ul/L
		Silver	UJ < IDL
			IDL < J < CRDL
		Zinc	UJ < IDL
			IDL < J < CRDL

4.0 ICP INTERFERENCE CHECK SAMPLE

EPA Interference check samples are run to verify interelement and background correction factors used by the lab during sample analysis. If lab results for the interference check sample (ICS) do not match the actual, known concentration, it is possible that certain elements in solution are affecting the results when analyzing for other elements. Such matrix effects could be due to chemical interactions or physical interferences. It is assumed that similar problems would exist for sample results and they should therefore be treated with caution.

REVIEW RESULTS: ICP ICS results for Antimony and Sodium in QC GROUP I and Sodium results in QC GROUP II are outside of control limits. However, there are no samples with comparable amounts of interferences present therefore no qualifications are necessary.

ICS control limit requirements:

An ICS must be run at the beginning and end of each sample analysis run (or a minimum of twice per 8 hour working shift, whichever is more frequent).

Percent Recovery of 80-120 %R

5.0 SPIKE SAMPLE ANALYSIS

The spiked sample analysis is also designed to provide information about the effect of the sample matrix on the digestion and measurement methodology. Sample spike recovery values which do not meet EPA/CLP criteria may indicate that sample analyte results are being attenuated in the analysis procedure. It is possible to estimate the bias of other sample results by noting the degree to which the spike concentration was elevated or lowered in the spike analysis. These bias results should be considered only crude approximations however, as sample specific problems may be the cause of the discrepancy, particularly in soil samples.

REVIEW RESULTS: Matrix spike results for Selenium in QC GROUP I are outside of control limits (32.2%). Selenium results for QC GROUP I are therefore estimated and are qualified "J".

Matrix spike results for QC GROUP II are within control limits.

Matrix spike control limit requirements:

Spike recoveries (%R) must be within the limits of 75-125%.

6.0 CRDL STANDARDS

CRDL standards contain analytes at concentrations corresponding to their respective CRDL values. These standards are run prior to and following sample analysis. These standards serve as a check for the linearity of the analytical system at or near an analyte's CRDL value.

REVIEW RESULTS: All CRDL results are acceptable.

7.0 DUPLICATES ANALYSIS

Duplicate samples are run to evaluate the precision of the sample results. The failure of the lab to reproduce similar results for a duplicate sample may indicate that the sample was of a non-homogeneous nature (particularly in soil samples), or perhaps method defects exist in the laboratory technique.

REVIEW RESULTS: All duplicate results were within control limits.

Duplicate control limit requirements:

A control limit of $\pm 20\%$ (35% for soil) for the Relative Percent Difference (RPD) shall be used for sample values greater than 5X CRDL.

A control limit of \pm CRDL (2X CRDL for soil) shall be used for sample values less than 5X CRDL.

8.0 LABORATORY CONTROL SAMPLE ANALYSIS

The laboratory control sample (LCS) is analyzed to serve as a monitor of the efficiency of the digestion procedure. The inability of the lab to successfully analyze an LCS is indicative of an analytical problem related to the digestion/sample preparation procedures and/or instrument operations.

REVIEW RESULTS: All LCS results are acceptable.

Laboratory Control Sample (LCS) requirements:

All aqueous LCS results must fall within the control limits of 80-120%R, with the exception of Antimony and Silver which have no control limits.

All solid LCS results must fall within the control limits established by the EPA.

9.0 FURNACE ATOMIC ABSORPTION (AA) QC ANALYSIS

Each sample containing analytes requiring analysis by AA undergoes a post-digest spike for those analytes. The post digest spike recovery obtained determines how the analysis will proceed or whether analysis by Methods of Standards Addition (MSA) will be required. Low spike recovery values may indicate matrix effects are affecting sample results or there may be a problem with the analysis procedure. MSA is generally considered less desirable as it may involve establishing a separate calibration for each analyte in each sample. The linearity of these individual calibration curves is assessed by computing the correlation coefficient. A low correlation coefficient is indicative of a poor calibration curve and the results should be considered suspect.

REVIEW RESULTS: Several samples have post digestion analytical spikes outside of control limits. Results for these samples are therefore estimated and are qualified with a "J". The following samples are qualified:

QC GROUP I Selenium: MHP 198, MHP 501, MHP 502, MHP 503, MHP 504, MHP 506, MHP 507, MHP 508, MHP 509, MHP 510, MHP 512, MHP 513, MHP 514, MHP 515, MHP 516, MHP 517, MHP 518, and MHP 520.

Thallium: MHP 198, MHP 502, MHP 503, MHP 504, MHP 505, MHP 506, MHP 507, MHP 508, MHP 509, MHP 510, MHP 511, MHP 512, MHP 513, MHP 514, MHP 515, MHP 516, MHP 517, MHP 518, and MHP 520.

QC GROUP II Arsenic: MHY 670.

Selenium: MHT 522 and MHT 523.

Lead: MHT 523 and MHY 678.

Thallium: MHT 522, MHT 523, MHY 670, MHY 672, and MHY 678.

GFAA QC Analysis control limit requirements:

For sample concentrations > CRDL, duplicate injections must agree within $\pm 20\%$ Relative Standard Deviation (RSD), (or Coefficient of Variation (CV)), otherwise the sample must be rerun.

Analytical spike recoveries must be between 85-115%R.

The Furnace Atomic Absorption Scheme must be followed as described in the 7/87 SOW, p. E-15.

10.0 ICP SERIAL DILUTION

Serial dilution analysis is also used to ascertain if significant physical or chemical interferences exist due to the sample matrix. A sample is reanalyzed following a five-fold dilution and the results are compared relative to the original, undiluted sample results. Poor comparability indicates that sample results may be affected by relative concentrations of analytes in the sample and some type of chemical or physical interference may be suspected.

REVIEW RESULTS: All ICP Serial Dilution results are acceptable.

ICP Serial Dilution requirements:

If the analyte concentration in the original sample is minimally a factor of 50 above the IDL, an analysis of a 5-fold dilution must agree within 10% Difference (%D) of the original results.

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHT198

Lab Name: SKINNER & SHERMAN LABS.

Contract: 58-D9-0088

Lab Code: SKINER

Case No.: 14772

SAS No.: 5512HQ

SDG No.: MHT198

Matrix (soil/water): WATER

Lab Sample ID: 08244-01S

Level (low/med): LOW

Date Received: 08/28/90

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	36.00	U		P
7440-36-0	Antimony	21.00	U		P
7440-38-2	Arsenic	2.00	U		P
7440-39-3	Barium	29.40	B		F
7440-41-7	Beryllium	1.00	U		P
7440-41-7	Cadmium	2.00	U		P
7440-70-2	Calcium	7090.00			P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	5.00	U		P
7439-89-6	Iron	211.00			P
7439-92-1	Lead	11.50			F
7439-95-4	Magnesium	1530.00	B		P
7439-96-5	Manganese	3.60	B		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	11.00	U		P
7440-09-7	Potassium	718.00	B		P
7782-49-2	Selenium	15.00	U	NW	F
7440-22-4	Silver	8.40	B		P
7440-23-5	Sodium	6350.00			P
7440-28-0	Thallium	2.00	U	W	F
7440-62-2	Vanadium	4.00	U		P
7440-66-9	Zinc	76.00			P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

000001

U.S. EPA - CLP

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHT501

Lab Name: SKINNER & SHERMAN LABS.

Contract: 68-D9-0088

Lab Code: SKINER

Case No.: 14772

SAS No.: 5512HQ

SDG No.: MHT198

Matrix (soil/water): WATER

Lab Sample ID: 08244-025

Level (low/med): LOW

Date Received: 08/28/90

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	36.00	U		P
7440-36-0	Antimony	21.00	U		P
7440-38-2	Arsenic	2.00	U		F
7440-39-3	Barium	24.30	B		P
7440-41-7	Beryllium	1.00	U		P
7440-41-7	Cadmium	3.00	B		P
7440-70-2	Calcium	7110.00	U		P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	9.10	B		P
7439-89-6	Iron	3220.00	U		P
7439-92-1	Lead	5.00	U		F
7439-95-4	Magnesium	1480.00	B		P
7439-96-5	Manganese	8.60	B		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	11.00	U		P
7440-09-7	Potassium	704.00	B		P
7782-49-2	Selenium	15.00	U	NW	F
7440-22-4	Silver	8.00	U		P
7440-23-5	Sodium	5110.00	U		P
7440-28-0	Thallium	2.00	U		F
7440-62-2	Vanadium	4.00	U		P
7440-66-6	Zinc	713.00	U		P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

000004

U.S. EPA - CLP

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHT502

Lab Name: SKINNER & SHERMAN LABS.

Contract: 68-D9-0088

Lab Code: SKINER

Case No.: 14772

SAS No.: 5512HQ

SDG No.: MHT198

Matrix (soil/water): WATER

Lab Sample ID: 08244-035

Level (low/med): LOW

Date Received: 08/28/90

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	36.00	U		P
7440-36-0	Antimony	21.00	U		P
7440-38-2	Arsenic	2.00	U		F
7440-39-3	Barium	19.70	B		P
7440-41-7	Beryllium	1.00	U		P
7440-41-7	Cadmium	2.00	U		P
7440-70-2	Calcium	7100.00			P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	7.00	B		P
7439-89-6	Iron	38.10	B		P
7439-92-1	Lead	2.20	B		F
7439-95-4	Magnesium	3290.00	B		P
7439-96-5	Manganese	19.20			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	11.00	U		P
7440-09-7	Potassium	691.00	B		P
7782-49-2	Selenium	3.00	U	NW	F
7440-22-4	Silver	8.00	U		P
7440-23-5	Sodium	5150.00			P
7440-28-0	Thallium	2.00	U	W	F
7440-62-2	Vanadium	4.00	U		P
7440-66-6	Zinc	44.00			P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

00005

U.S. EPA - CLP

1
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHT503

Lab Name: SKINNER & SHERMAN LABS.

Contract: 68-D9-0088

Lab Code: SKINER

Case No.: 14772

SAS No.: 5512HQ

SDG No.: MHT198

Matrix (soil/water): WATER

Lab Sample ID: 08244-045

Level (low/med): LOW

Date Received: 08/28/90

% Solids:

0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	36.00	U		P
7440-36-0	Antimony	21.00	U		P
7440-38-2	Arsenic	2.40	B		F
7440-39-3	Barium	107.00	B		P
7440-41-7	Beryllium	1.00	U		P
7440-41-7	Cadmium	2.00	U		P
7440-70-2	Calcium	78700.00			P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	11.20	B		P
7440-50-8	Copper	5.00	U		P
7439-89-6	Iron	1530.00			P
7439-92-1	Lead	2.00	U		F
7439-95-4	Magnesium	18300.00			P
7439-96-5	Manganese	353.00			P
7439-97-6	Mercury	0.34			CV
7440-02-0	Nickel	11.00	U		P
7440-09-7	Potassium	1320.00	B		P
7782-49-2	Selenium	15.00	U	NW	F
7440-22-4	Silver	8.00	U		P
7440-23-5	Sodium	7150.00			P
7440-28-0	Thallium	2.00	U	W	F
7440-62-2	Vanadium	4.00	U		P
7440-66-6	Zinc	28.90			P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

00006

U.S. EPA - CLP

1
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHT504

Lab Name: SKINNER & SHERMAN LABS.

Contract: 68-D9-0088

Lab Code: SKINER

Case No.: 14772

SAS No.: 5512HQ

SDG No.: MHT198

Matrix (soil/water): WATER

Lab Sample ID: 08244-055

Level (low/med): LOW

Date Received: 08/28/90

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	108.00	B		P
7440-36-0	Antimony	21.00	U		P
7440-38-2	Arsenic	2.00	U		F
7440-39-3	Barium	42.40	B		P
7440-41-7	Beryllium	1.00	U		P
7440-41-7	Cadmium	2.00	U		P
7440-70-2	Calcium	6670.00			P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	5.00	U		P
7439-89-6	Iron	1360.00			P
7439-92-1	Lead	2.70	B		F
7439-95-4	Magnesium	1510.00	B		P
7439-96-5	Manganese	6.70	B		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	11.00	U		P
7440-09-7	Potassium	729.00	B		P
7782-49-2	Selenium	15.00	U	NW	F
7440-22-4	Silver	8.00	U		P
7440-23-5	Sodium	6570.00			P
7440-28-0	Thallium	2.00	U	W	F
7440-62-2	Vanadium	4.00	U		P
7440-66-6	Zinc	153.00			P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

400007

U.S. EPA - CLP

1
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHT505

Lab Name: SKINNER & SHERMAN LABS.

Contract: 68-D9-0088

Lab Code: SKINER

Case No.: 14772

SAS No.: 5512HQ

SDG No.: MHT198

Matrix (soil/water): WATER

Lab Sample ID: 08244-06S

Level (low/med): LOW

Date Received: 08/28/90

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	36.00	U		P
7440-36-0	Antimony	21.00	U		P
7440-38-2	Arsenic	2.00	U		F
7440-39-3	Barium	5.50	B		P
7440-41-7	Beryllium	1.00	U		P
7440-41-7	Cadmium	2.00	U		P
7440-70-2	Calcium	1680.00	B		P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	5.00	U		P
7439-89-6	Iron	183.00			P
7439-92-1	Lead	2.00	U		F
7439-95-4	Magnesium	250.00	B		P
7439-96-5	Manganese	102.00			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	11.00	U		P
7440-09-7	Potassium	406.00	B		P
7782-49-2	Selenium	3.00	U	N	F
7440-22-4	Silver	8.00	U		P
7440-23-5	Sodium	1450.00	B		P
7440-28-0	Thallium	2.00	U	W	F
7440-62-2	Vanadium	4.00	U		P
7440-66-6	Zinc	35.00			P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

000008

1
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHT506

Lab Name: SKINNER & SHERMAN LABS.

Contract: 62-D9-0028

Lab Code: SKINER

Case No.: 14772

SAS No.: 5512HQ

SDG No.: MHT198

Matrix (soil/water): WATER

Lab Sample ID: 08244-07S

Level (low/med): LOW

Date Received: 08/28/90

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	56.50	B		P
7440-36-0	Antimony	21.00	U		P
7440-38-2	Arsenic	2.00	U		F
7440-39-3	Barium	4.70	B		P
7440-41-7	Beryllium	1.00	U		P
7440-41-7	Cadmium	2.00	U		P
7440-70-2	Calcium	2430.00	B		P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	13.90	B		P
7439-89-6	Iron	59.70	B		P
7439-92-1	Lead	2.00	U		F
7439-95-4	Magnesium	403.00	B		P
7439-96-5	Manganese	3.30	B		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	11.00	U		P
7440-09-7	Potassium	550.00	B		P
7782-49-2	Selenium	3.00	U	NW	F
7440-22-4	Silver	8.00	U		P
7440-23-5	Sodium	3110.00	B		P
7440-28-0	Thallium	2.00	U		F
7440-62-2	Vanadium	4.00	U		P
7440-66-6	Zinc	73.70			P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

000009

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

Lab Name: SKINNER & SHERMAN LABS.

Contract: 68-09-GC83

MHT507

Lab Code: SKINER

Case No.: 14772

SAS No.: 5512HQ

SDG No.: MHT198

Matrix (soil/water): WATER

Lab Sample ID: 08244-08S

Level (low/med): LOW

Date Received: 08/28/90

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	36.00	U		P
7440-36-0	Antimony	21.00	U		P
7440-38-2	Arsenic	2.00	U		P
7440-39-3	Barium	44.20	B		P
7440-41-7	Beryllium	1.00	U		P
7440-41-7	Cadmium	2.00	U		P
7440-70-2	Calcium	15600.00			P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	5.00	U		P
7439-89-6	Iron	50.40	B		P
7439-92-1	Lead	2.00	U		P
7439-95-4	Magnesium	3260.00	B		P
7439-96-5	Manganese	6.40	B		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	11.00	U		P
7440-09-7	Potassium	1060.00	B		P
7782-49-2	Selenium	15.00	U	NW	F
7440-22-4	Silver	8.00	U		P
7440-23-5	Sodium	6470.00			P
7440-28-0	Thallium	2.00	U	W	F
7440-62-2	Vanadium	4.00	U		P
7440-66-6	Zinc	39.50			P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

000010

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHT508

Lab Name: SKINNER & SHERMAN LABS.

Contract: 58-D9-0088

Lab Code: SKINER

Case No.: 14772

SAS No.: 5512HQ

SDG No.: MHT198

Matrix (soil/water): WATER

Lab Sample ID: 08244-095

Level (low/med): LOW

Date Received: 08/28/90

% Solids:

0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	36.00	U		P
7440-36-0	Antimony	21.00	U		P
7440-38-2	Arsenic	2.00	U		F
7440-39-3	Barium	43.00	B		P
7440-41-7	Beryllium	1.00	U		P
7440-41-7	Cadmium	2.00	U		P
7440-70-2	Calcium	99200.00			P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	5.00	U		P
7439-89-6	Iron	36.70	B		P
7439-92-1	Lead	2.00	U		F
7439-95-4	Magnesium	21300.00			P
7439-96-5	Manganese	183.00			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	11.00	U		P
7440-09-7	Potassium	1310.00	B		P
7782-49-2	Selenium	15.00	U	NWU	F
7440-22-4	Silver	8.00	U		P
7440-23-5	Sodium	10600.00			P
7440-28-0	Thallium	2.00	U	W	F
7440-62-2	Vanadium	4.00	U		P
7440-66-6	Zinc	15.60	B		P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

00011

1
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

Lab Name: SKINNER & SHERMAN LABS.

Contract: 68-09-0088

MHT509

Lab Code: SKINER

Case No.: 14772

SAS No.: 5512HQ

SDG No.: MHT198

Matrix (soil/water): WATER

Lab Sample ID: 08244-108

Level (low/med): LOW

Date Received: 08/28/90

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	69.90	B		P
7440-36-0	Antimony	21.00	U		P
7440-38-2	Arsenic	2.00	U		F
7440-39-3	Barium	39.00	B		P
7440-41-7	Beryllium	1.00	U		P
7440-41-7	Cadmium	2.00	U		P
7440-70-2	Calcium	23800.00			P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	34.50			P
7439-89-6	Iron	123.00			P
7439-92-1	Lead	2.50	B		F
7439-95-4	Magnesium	5010.00			P
7439-96-5	Manganese	10.30	B		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	11.00	U		P
7440-09-7	Potassium	1010.00	B		P
7782-49-2	Selenium	15.00	U	NMW	F
7440-22-4	Silver	8.00	U		P
7440-23-5	Sodium	7870.00			P
7440-28-0	Thallium	2.00	U	W	F
7440-62-2	Vanadium	4.00	U		P
7440-66-6	Zinc	527.00			P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

006012

1
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHT510

Lab Name: SKINNER & SHERMAN LABS.

Contract: 58-D9-0088

Lab Code: SKINER

Case No.: 14772

SAS No.: 5512HQ

SDG No.: MHT198

Matrix (soil/water): WATER

Lab Sample ID: 08244-11S

Level (low/med): LOW

Date Received: 08/28/90

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	36.00:U			P
7440-36-0	Antimony	21.00:U			P
7440-38-2	Arsenic	2.00:U			F
7440-39-3	Barium	16.60:B			P
7440-41-7	Beryllium	1.00:U			P
7440-41-7	Cadmium	2.00:U			P
7440-70-2	Calcium	6190.00:			P
7440-47-3	Chromium	4.00:U			P
7440-48-4	Cobalt	3.00:U			P
7440-50-8	Copper	5.00:U			P
7439-89-6	Iron	37.50:B			P
7439-92-1	Lead	2.00:U			F
7439-95-4	Magnesium	1140.00:B			P
7439-96-5	Manganese	2.50:B			P
7439-97-6	Mercury	0.20:U			CV
7440-02-0	Nickel	11.00:U			P
7440-09-7	Potassium	518.00:B			P
7782-49-2	Selenium	15.00:U-NW			F
7440-22-4	Silver	8.00:U			P
7440-23-5	Sodium	5910.00:			P
7440-28-0	Thallium	2.00:U-NW			F
7440-62-2	Vanadium	4.00:U			P
7440-66-6	Zinc	20.90:			P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

600013

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHT511

Lab Name: SKINNER & SHERMAN LABS.

Contract: 58-09-0088

Lab Code: SKINER

Case No.: 14772

SAS No.: 5512HQ

SDG No.: MHT198

Matrix (soil/water): WATER

Lab Sample ID: 08244-12S

Level (low/med): LOW

Date Received: 08/28/90

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	2	M
7429-90-5	Aluminum	56.50	B		P
7440-36-0	Antimony	21.00	U		P
7440-38-2	Arsenic	2.00	U		F
7440-39-3	Barium	5.30	B		P
7440-41-7	Beryllium	1.00	U		P
7440-41-7	Cadmium	2.00	U		P
7440-70-2	Calcium	47.30	B		P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	5.00	U		P
7439-89-6	Iron	53.10	B		P
7439-92-1	Lead	2.00	U		F
7439-95-4	Magnesium	31.00	U		P
7439-96-5	Manganese	1.90	B		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	11.00	U		P
7440-09-7	Potassium	136.00	U		P
7782-49-2	Selenium	3.00	U		F
7440-22-4	Silver	8.00	U		P
7440-23-5	Sodium	120.00	U		P
7440-28-0	Thallium	2.00	U		F
7440-62-2	Vanadium	4.00	U		P
7440-66-6	Zinc	17.10	B		P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

00014

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHT512

Lab Name: SKINNER & SHERMAN LABS.

Contract: 68-D9-0088

Lab Code: SKINER

Case No.: 14772

SAS No.: 5512HQ

SDG No.: MHT198

Matrix (soil/water): WATER

Lab Sample ID: 08244-13S

Level (low/med): LOW

Date Received: 08/28/90

Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	49.50	B		P
7440-36-0	Antimony	21.00	U		P
7440-38-2	Arsenic	2.00	U		P
7440-39-3	Barium	4.70	B		F
7440-41-7	Beryllium	1.00	U		P
7440-41-7	Cadmium	2.00	U		P
7440-70-2	Calcium	5840.00			P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	5.00	U		P
7439-89-6	Iron	26.40	B		P
7439-92-1	Lead	2.00	U		F
7439-95-4	Magnesium	1480.00	B		P
7439-96-5	Manganese	1.90	B		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	11.00	U		P
7440-09-7	Potassium	790.00	B		P
7782-49-2	Selenium	3.00	U	NW	F
7440-22-4	Silver	8.00	U		P
7440-23-5	Sodium	3960.00	B		P
7440-28-0	Thallium	2.00	U	W	F
7440-62-2	Vanadium	4.00	U		P
7440-66-6	Zinc	186.00			P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

000015

1
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHT513

Lab Name: SKINNER & SHERMAN LABS.

Contract: 53-09-0088

Lab Code: SKINER

Case No.: 14772

SAS No.: 5512HQ

SDG No.: MHT198

Matrix (soil/water): WATER

Lab Sample ID: 08244-14S

Level (low/med): LOW

Date Received: 08/28/90

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	36.00	U		P
7440-36-0	Antimony	21.00	U		P
7440-38-2	Arsenic	2.00	U		F
7440-39-3	Barium	58.40	B		P
7440-41-7	Beryllium	1.00	U		P
7440-41-7	Cadmium	2.00	U		P
7440-70-2	Calcium	9900.00			P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	5.00	U		P
7439-89-6	Iron	315.00			P
7439-92-1	Lead	2.00	U		F
7439-95-4	Magnesium	2340.00	B		P
7439-96-5	Manganese	7.50	B		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	11.00	U		P
7440-09-7	Potassium	870.00	B		P
7782-49-2	Selenium	15.00	U	NWU	F
7440-22-4	Silver	8.00	U		P
7440-23-5	Sodium	8690.00			P
7440-28-0	Thallium	2.00	U	W	F
7440-62-2	Vanadium	4.00	U		P
7440-66-6	Zinc	11.20	B		P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

000016

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHT514

Lab Name: SKINNER & SHERMAN LABS.

Contract: 68-D9-0083

Lab Code: SKINER

Case No.: 14772

SAS No.: 5512HQ

SDG No.: MHT198

Matrix (soil/water): WATER

Lab Sample ID: 08244-155

Level (low/med): LOW

Date Received: 08/28/90

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	36.00	U		P
7440-36-0	Antimony	21.00	U		P
7440-38-2	Arsenic	2.00	U		P
7440-39-3	Barium	59.60	B		P
7440-41-7	Beryllium	1.00	U		P
7440-41-7	Cadmium	2.00	U		P
7440-70-2	Calcium	10100.00			P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	5.00	U		P
7439-89-6	Iron	344.00			P
7439-92-1	Lead	2.00	U		F
7439-95-4	Magnesium	2410.00	B		P
7439-96-5	Manganese	7.50	B		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	11.00	U		P
7440-09-7	Potassium	908.00	B		P
7782-49-2	Selenium	15.00	U	NW	F
7440-22-4	Silver	8.00	U		P
7440-23-5	Sodium	8900.00			P
7440-28-0	Thallium	2.00	U	W	F
7440-62-2	Vanadium	4.00	U		P
7440-66-6	Zinc	10.40	B		P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

800017

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHT515

Lab Name: SKINNER & SHERMAN LABS.

Contract: 88-00000088

Lab Code: SKINER

Case No.: 14772

SAS No.: 88-00000088

SDG No.: MHT198

Matrix (soil/water): WATER

Lab Sample ID: 08244-165

Level (low/med): LOW

Date Received: 08/28/90

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	Unit	M
7429-90-5	Aluminum	66.00	UG	P
7440-36-0	Antimony	21.00	UG	P
7440-38-2	Arsenic	2.00	UG	F
7440-39-3	Barium	6.00	UG	P
7440-41-7	Beryllium	1.00	UG	P
7440-41-7	Cadmium	2.00	UG	P
7440-70-2	Calcium	10000.00	UG	P
7440-47-3	Chromium	4.00	UG	P
7440-48-4	Cobalt	3.00	UG	P
7440-50-8	Copper	5.00	UG	P
7439-89-6	Iron	77.40	UG	P
7439-92-1	Lead	2.00	UG	F
7439-95-4	Magnesium	1950.00	UG	P
7439-96-5	Manganese	1.10	UG	P
7439-97-6	Mercury	0.22	UG	CV
7440-02-0	Nickel	11.00	UG	P
7440-09-7	Potassium	659.00	UG	P
7782-49-2	Selenium	3.00	UG-HW	F
7440-22-4	Silver	8.00	UG	P
7440-23-5	Sodium	5450.00	UG	P
7440-28-0	Thallium	2.00	UG-HW	F
7440-62-2	Vanadium	4.00	UG	P
7440-66-6	Zinc	70.00	UG	P
	Cyanide			NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

000018

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHT516

Lab Name: SKINNER & SHERMAN LABS.

Contract: 68-D9-0088

Lab Code: SKINER

Case No.: 14772

SAS No.: 5512HQ

SDG No.: MHT198

Matrix (soil/water): WATER

Lab Sample ID: 08244-175

Level (low/med): LOW

Date Received: 08/28/90

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	36.00	U		P
7440-36-0	Antimony	21.00	U		P
7440-38-2	Arsenic	2.00	U		F
7440-39-3	Barium	24.30	B		P
7440-41-7	Beryllium	1.00	U		P
7440-41-7	Cadmium	2.00	U		P
7440-70-2	Calcium	6580.00			P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	5.00	U		P
7439-89-6	Iron	371.00			P
7439-92-1	Lead	2.00	U		F
7439-95-4	Magnesium	1360.00	B		P
7439-96-5	Manganese	4.40	B		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	11.00	U		P
7440-09-7	Potassium	814.00	B		P
7782-49-2	Selenium	3.00	U	NW	F
7440-22-4	Silver	8.00	U		P
7440-23-5	Sodium	6530.00			P
7440-28-0	Thallium	2.00	U	W	F
7440-62-2	Vanadium	4.00	U		P
7440-66-6	Zinc	72.20			P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

000019

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHT517

Lab Name: SKINNER & SHERMAN LABS.

Contract: 68-09-0088

Lab Code: SKINER

Case No.: 14772

SAS No.: 5512HQ

SDG No.: MHT198

Matrix (soil/water): WATER

Lab Sample ID: 08244-185

Level (low/med): LOW

Date Received: 08/28/90

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	36.00	U		P
7440-36-0	Antimony	21.00	U		P
7440-38-2	Arsenic	2.00	U		F
7440-39-3	Barium	13.00	B		P
7440-41-7	Beryllium	1.00	U		P
7440-41-7	Cadmium	2.00	U		P
7440-70-2	Calcium	20400.00			P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	5.00	U		P
7439-89-6	Iron	86.70	B		P
7439-92-1	Lead	2.00	U		F
7439-95-4	Magnesium	4050.00	B		P
7439-96-5	Manganese	3.30	B		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	11.00	U		P
7440-09-7	Potassium	1050.00	B		P
7782-49-2	Selenium	15.00	U	NW	F
7440-22-4	Silver	8.00	U		P
7440-23-5	Sodium	8410.00			P
7440-28-0	Thallium	2.00	U	W	F
7440-62-2	Vanadium	4.00	U		P
7440-66-6	Zinc	84.90			P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

000020

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHT518

Lab Name: SKINNER & SHERMAN LABS.

Contract: 68-D9-0088

Lab Code: SKINER

Case No.: 14772

SAS No.: 5512HQ

SDG No.: MHT198

Matrix (soil/water): WATER

Lab Sample ID: 08244-19S

Level (low/med): LOW

Date Received: 08/28/90

Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	36.00	U		P
7440-36-0	Antimony	21.00	U		P
7440-38-2	Arsenic	2.00	U		F
7440-39-3	Barium	8.10	B		P
7440-41-7	Beryllium	1.00	U		P
7440-41-7	Cadmium	2.00	U		P
7440-70-2	Calcium	9320.00			P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	6.70	B		P
7439-89-6	Iron	100.00			P
7439-92-1	Lead	2.40	B		F
7439-95-4	Magnesium	1810.00	B		P
7439-96-5	Manganese	11.70	B		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	11.00	U		P
7440-09-7	Potassium	612.00	B		P
7782-49-2	Selenium	3.00	U	NW	F
7440-22-4	Silver	8.00	U		P
7440-23-5	Sodium	6450.00			P
7440-28-0	Thallium	2.00	U	W	F
7440-62-2	Vanadium	4.00	U		P
7440-66-6	Zinc	477.00			P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

000021

INORGANIC ANALYSIS DATA SHEET

MHT520

Lab Name: SKINNER & SHERMAN LABS.

Contract: 68-D9-0088

Lab Code: SKINER

Case No.: 14772

SAS No.: 5512HQ

SDG No.: MHT198

Matrix (soil/water): WATER

Lab Sample ID: 08244-20S

Level (low/med): LOW

Date Received: 08/28/90

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	95.40	B		P
7440-36-0	Antimony	21.00	U		P
7440-38-2	Arsenic	2.00	U		F
7440-39-3	Barium	5.30	B		P
7440-41-7	Beryllium	1.00	U		P
7440-41-7	Cadmium	2.00	U		P
7440-70-2	Calcium	2360.00	B		P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	5.00	U		P
7439-89-6	Iron	74.90	B		P
7439-92-1	Lead	2.00	U		F
7439-95-4	Magnesium	354.00	B		P
7439-96-5	Manganese	6.10	B		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	11.00	U		P
7440-09-7	Potassium	532.00	B		P
7782-49-2	Selenium	3.00	U	NW	F
7440-22-4	Silver	8.00	U		P
7440-23-5	Sodium	2390.00	B		P
7440-28-0	Thallium	2.00	U	W	F
7440-62-2	Vanadium	4.00	U		P
7440-66-6	Zinc	34.20			P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

000022

INORGANIC ANALYSIS DATA SHEET

MHT522

Lab Name: SKINNER & SHERMAN LABS.

Contract: 64-DG-0088

Lab Code: SKINER

Case No.: 14772

SAS No.: 5512HQ

SDG No.: MHT522

Matrix (soil/water): WATER

Lab Sample ID: D2280-055

Level (low/med): LOW

Date Received: 08/28/90

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	G	M
7429-90-5	Aluminum	37.80	B		P
7440-36-0	Antimony	10.00	U		P
7440-38-2	Arsenic	2.00	U		F
7440-39-3	Barium	22.90	B		P
7440-41-7	Beryllium	1.00	U		P
7440-41-7	Cadmium	2.00	U		P
7440-70-2	Calcium	10600.00			P
7440-47-3	Chromium	5.00	U		P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	3.00	U		P
7439-89-6	Iron	75.20	B		P
7439-92-1	Lead	11.30			F
7439-95-4	Magnesium	2530.00	B		P
7439-96-5	Manganese	12.60	B		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	5.00	U		P
7440-09-7	Potassium	1850.00	B		P
7782-49-2	Selenium	3.00	U		F
7440-22-4	Silver	4.00	U		P
7440-23-5	Sodium	4230.00	B		P
7440-28-0	Thallium	2.00	U		F
7440-62-2	Vanadium	3.00	U		P
7440-66-6	Zinc	2.00	U		P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHT523

Lab Name: SKINNER & SHERMAN LABS.

Contract: 68-09-0088

Lab Code: SKINER

Case No.: 14772

SAS No.: 5512HQ

SDG No.: MHT522

Matrix (soil/water): WATER

Lab Sample ID: 03280-065

Level (low/med): LOW

Date Received: 08/28/90

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration:	C	Q	M
7429-90-5	Aluminum	72.80	8		P
7440-36-0	Antimony	10.00	U		P
7440-38-2	Arsenic	2.00	U		F
7440-39-3	Barium	19.20	8		P
7440-41-7	Beryllium	1.00	U		P
7440-41-7	Cadmium	2.00	U		P
7440-70-2	Calcium	11000.00			P
7440-47-3	Chromium	5.00	U		P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	3.00	U		P
7439-89-6	Iron	129.00			P
7439-92-1	Lead	1.40	8	U	F
7439-95-4	Magnesium	2330.00	8		P
7439-96-5	Manganese	8.60	8		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	5.00	U		P
7440-09-7	Potassium	1260.00	8		P
7782-49-2	Selenium	3.00	U	W U	F
7440-22-4	Silver	4.00	U		P
7440-23-5	Sodium	3800.00	8		P
7440-28-0	Thallium	2.00	U	W U	F
7440-62-2	Vanadium	3.00	U		P
7440-66-6	Zinc	2.00	U		P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

000063

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHY662

Lab Name: SKINNER & SHERMAN LABS.

Contract: 66-D9-0088

Lab Code: SKINER

Case No.: 14770

SAS No.: 5512H0

SDG No.: MHT522

Matrix (soil/water): WATER

Lab Sample ID: 02280-015

Level (low/med): LOW

Date Received: 08/28/90

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	D	M
7429-90-5	Aluminum	127.00	U		P
7440-36-0	Antimony	10.00	U		P
7440-38-2	Arsenic	2.00	U		F
7440-39-3	Barium	4.20	U		P
7440-41-7	Beryllium	1.00	U		P
7440-41-7	Cadmium	2.00	U		P
7440-70-2	Calcium	2110.00	U		P
7440-47-3	Chromium	5.00	U		P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	3.00	U		P
7439-89-6	Iron	76.00	U		P
7439-92-1	Lead	1.10	U		F
7439-95-4	Magnesium	402.00	U		P
7439-96-5	Manganese	7.00	U		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	5.00	U		P
7440-09-7	Potassium	780.00	U		P
7782-49-2	Selenium	3.00	U		F
7440-22-4	Silver	4.00	U		P
7440-23-5	Sodium	1710.00	U		P
7440-28-0	Thallium	2.00	U		F
7440-62-2	Vanadium	3.00	U		P
7440-66-6	Zinc	5.50	U		P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

000064

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MNY670

Lab Name: SKINNER & SHERMAN LABS.

Contract: 68-01-0083

Lab Code: SKINER

Case No.: 14770

SAS No.: 551CHQ

SDG No.: MHT522

Matrix (soil/water): WATER

Lab Sample ID: 03280-025

Level (low/med): LOW

Date Received: 03/29/90

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	D	M
7429-90-5	Aluminum	98.50	B		P
7440-36-0	Antimony	10.00	U		P
7440-38-2	Arsenic	2.40	B	W	F
7440-39-3	Barium	4.20	B		P
7440-41-7	Beryllium	1.00	U		P
7440-41-7	Cadmium	2.00	U		P
7440-70-2	Calcium	2350.00	B		P
7440-47-3	Chromium	5.00	U		P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	3.00	U		P
7439-89-6	Iron	138.00	B		P
7439-92-1	Lead	1.40	B		F
7439-95-4	Magnesium	413.00	B		P
7439-96-5	Manganese	8.60	B		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	5.00	U		P
7440-09-7	Potassium	780.00	U		P
7782-49-2	Selenium	3.00	U		F
7440-22-4	Silver	4.00	U		P
7440-23-5	Sodium	1740.00	B		P
7440-28-0	Thallium	2.00	U	W	F
7440-62-2	Vanadium	3.00	U		P
7440-66-0	Zinc	2.00	U		P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

000005

1
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MY672

Lab Name: SKINNER & SHERMAN LABS.

Contract: 62-02-0088

Lab Code: SKINER

Case No.: 14772

SAS No.: 5512HQ

SDG No.: MHT522

Matrix (soil/water): WATER

Lab Sample ID: 08280-036

Level (low/med): LOW

Date Received: 08/28/90

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	M
7429-90-5	Aluminum	84.2018		P
7440-36-0	Antimony	10.001U		P
7440-38-2	Arsenic	2.001U		F
7440-39-3	Barium	4.2018		P
7440-41-7	Beryllium	1.001U		P
7440-41-7	Cadmium	2.001U		P
7440-70-2	Calcium	2210.0018		P
7440-47-3	Chromium	5.001U		P
7440-48-4	Cobalt	4.001U		P
7440-50-8	Copper	3.001U		P
7439-89-6	Iron	74.4018		P
7439-92-1	Lead	1.001U		F
7439-95-4	Magnesium	425.0018		P
7439-96-5	Manganese	7.001U		P
7439-97-6	Mercury	0.201U		CV
7440-02-0	Nickel	5.001U		P
7440-09-7	Potassium	780.001U		P
7782-49-2	Selenium	3.001U		F
7440-22-4	Silver	4.001U		P
7440-23-5	Sodium	1790.0018		P
7440-28-0	Thallium	2.001U	W	F
7440-62-2	Vanadium	3.001U		P
7440-66-6	Zinc	2.001U		P
	Cyanide			NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

000006

INORGANIC ANALYSIS DATA SHEET

MHY678

Lab Name: SKINNER & SHERMAN LABS.

Contract: 62-02-0088

Lab Code: SKINER

Case No.: 14772

SAS No.: 5512HQ

SDG No.: MHT522

Matrix (soil/water): WATER

Lab Sample ID: 08280-043

Level (low/med): LOW

Date Received: 08/28/90

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	G	M
7429-90-5	Aluminum	85.90:8			P
7440-36-0	Antimony	10.00:U			P
7440-38-2	Arsenic	2.00:U			F
7440-39-3	Barium	17.20:8			P
7440-41-7	Beryllium	1.00:U			P
7440-41-7	Cadmium	2.00:U			P
7440-70-2	Calcium	10500.00:			P
7440-47-3	Chromium	5.00:U			P
7440-48-4	Cobalt	4.00:U			P
7440-50-8	Copper	3.00:U			P
7439-89-6	Iron	147.00:			P
7439-92-1	Lead	6.60:			F
7439-95-4	Magnesium	2200.00:8			P
7439-96-5	Manganese	8.60:8			P
7439-97-6	Mercury	0.20:U			CV
7440-02-0	Nickel	5.00:U			P
7440-09-7	Potassium	1240.00:8			P
7782-49-2	Selenium	3.00:U			F
7440-22-4	Silver	4.00:U			P
7440-23-5	Sodium	3690.00:8			P
7440-28-0	Thallium	2.00:U			F
7440-62-2	Vanadium	3.00:U			P
7440-66-6	Zinc	2.00:U			P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

608607

REGION VIII SUMMARY OF DATA QUALITY ASSURANCE REVIEW

Case No.: 14772

TDD No.: F06-005-08

Site: Bitterroot Valley Sanitary Landfill

Contractor Laboratory: Skinner and Sherman Laboratories Inc.

Data Reviewer : Christopher Sundeen Date of Review: Nov. 19, 1990.

Sample Matrix: Eleven (11) Soil Samples.

ANALYSIS: HSL Metals

Sample Nos.: MHP 669, MHP 671, MHP 673, MHP 674, MHP 675, MHP 676,
MHP 677, MHT 519, MHT 521, MHT 524, MHT 525.

- ☐ Data are acceptable for use.
- ☒ Data are acceptable for use with qualifications noted.
- ☐ Data are preliminary - pending verification.
- ☐ Data are unacceptable.

Action required by DPO?

No X

Action required by project officer?

No X

REVIEW SUMMARY:

Data are acceptable for use with qualifications noted.

- * All ICVs and CCVs achieved control limit requirements.
- * All standard correlation coefficients (r) are greater than 0.995 with the exception of Selenium (0.991). Sample results for Selenium are therefore estimated and are flagged: "J".
- * All CRDL results are acceptable.
- * All holding time and preservation criteria were met.
- * Several elements had blank concentrations greater than IDL or had negative blank concentrations whose absolute values were greater than IDL.

For elements with blank concentrations greater than IDL:

Sample results greater than the Instrument Detection Limit (IDL) but less than five times the amount of any blank are qualified as undetected, "U".

The elements affected are Barium, Cadmium, Calcium, Chromium, Cobalt, Iron, Manganese, Sodium, and Zinc.

For elements with negative blank concentrations whose absolute value is greater than IDL:

Sample results between IDL and CRDL are qualified as estimated, "J". Sample results less than IDL are qualified as "UJ" (the detection limit is estimated). The possibility of false negatives exist.

The elements affected are Aluminum, Copper and Silver.

- * ICP ICS results for Sodium are outside of control limits. However, there are no samples with comparable amounts of interferents present, therefore no qualifications are necessary.
- * All matrix spike results are acceptable.
- * All duplicate results were within control limits.
- * All LCS results are acceptable.
- * Several samples have GFAA post digestion analytical spikes outside of control limits. Results for these samples are therefore estimated and are qualified with a "J". The following sample results are qualified:

Selenium: MHP 673, MHP 674, MHP 675, MHP 676, MHP 677,
MHT 519, and MHT 525.
- * All serial dilution results are acceptable with the exception of Iron (11.5%) and Manganese (17.7%). Results for these elements are estimated and are qualified "J".

1.0 HOLDING TIMES

Holding times are established and monitored to ensure analytical results accurately represent analyte concentrations in a sample at the time of collection. Exceeding the holding time for a sample generally affects a loss of the analyte due to a variety of mechanisms, such as deposition on the sample container walls or precipitation.

REVIEW RESULTS: All holding time and preservation criteria were met.

Holding time and preservation requirements:

Metals: 6 months; preserved to pH < 2

Mercury: 28 days; preserved to pH < 2

Cyanide: 14 days; preserved to pH > 12

2.0 INITIAL AND CONTINUING CALIBRATION VERIFICATION

Initial and continuing calibration verification solutions contain known concentrations of elements being analyzed for and are repeatedly checked throughout a sample batch run. The inability of the lab to perform acceptably on the calibration criteria may indicate that severe problems exist in the laboratory's analytical system. Associated sample data generated under such conditions should be considered suspect.

REVIEW RESULTS: All ICVs and CCVs achieved control limit requirements.

All standard correlation coefficients (r) are greater than 0.995 with the exception of Selenium (0.994). Sample results for Selenium are therefore estimated and are qualified "J".

ICV and CCV control limit requirements:

Metals: 90-110 percent Recovery (%R)

Mercury: 80-120 percent Recovery (%R)

Cyanide: 85-115 percent Recovery (%R)

3.0 CRDL STANDARDS

CRDL standards contain analytes at concentrations corresponding to their respective CRDL values. These standards are run prior to and following sample analysis. These standards serve as a check for the linearity of the analytical system at or near an analyte's CRDL value.

REVIEW RESULTS: All CRDL results are acceptable.

4.0 BLANKS

Laboratory blank samples are analyzed and evaluated to determine the existence and magnitude of possible contamination problems. Generally, if analyte concentrations greater than the CRDL for a given analyte are found in a laboratory blank, it is likely that the analyte is present as a contaminant in some phase of the analysis procedure and associated sample concentrations may be biased high.

REVIEW RESULTS: Several elements had blank concentrations greater than IDL or had negative blank concentrations whose absolute values were greater than IDL.

For elements with blank concentrations greater than IDL:

Sample results greater than the Instrument Detection Limit (IDL) but less than five times the amount in any blank are qualified as undetected, "U".

The elements affected are Barium, Cadmium, Calcium, Chromium, Cobalt, Iron, Manganese, Sodium, and Zinc.

For elements with negative blank concentrations whose absolute value is greater than IDL:

Sample results between IDL and CRDL are qualified as estimated, "J". Sample results less than IDL are qualified as "UJ" (the detection limit is estimated). The possibility of false negatives exist.

The elements affected are Aluminum, Copper, and Silver.

5.0 ICP INTERFERENCE CHECK SAMPLE

EPA Interference check samples are run to verify interelement and background correction factors used by the lab during sample analysis. If lab results for the interference check sample (ICS) do not match the actual, known concentration, it is possible that certain elements in solution are affecting the results when analyzing for other elements. Such matrix effects could be due to chemical interactions or physical interferences. It is assumed that similar problems would exist for sample results and they should therefore be treated with caution.

REVIEW RESULTS: ICP ICS results for Sodium are outside of control limits. However, there are no samples with comparable amounts of interferents present, therefore no qualifications are necessary.

ICS control limit requirements:

An ICS must be run at the beginning and end of each sample analysis run (or a minimum of twice per 8 hour working shift, whichever is more frequent).

Percent Recovery of 80-120 %R

6.0 SPIKE SAMPLE ANALYSIS

The spiked sample analysis is also designed to provide information about the effect of the sample matrix on the digestion and measurement methodology. Sample spike recovery values which do not meet EPA/CLP criteria may indicate that sample analyte results are being attenuated in the analysis procedure. It is possible to estimate the bias of other sample results by noting the degree to which the spike concentration was elevated or lowered in the spike analysis. These bias results should be considered only crude approximations however, as sample specific problems may be the cause of the discrepancy, particularly in soil samples.

REVIEW RESULTS: All matrix spike results are acceptable.

Matrix spike control limit requirements:

Spike recoveries (%R) must be within the limits of 75-125%.

7.0 DUPLICATES ANALYSIS

Duplicate samples are run to evaluate the precision of the sample results. The failure of the lab to reproduce similar results for a duplicate sample may indicate that the sample was of a non-homogeneous nature (particularly in soil samples), or perhaps method defects exist in the laboratory technique.

REVIEW RESULTS: All duplicate results are within control limits.

Duplicate control limit requirements:

A control limit of $\pm 20\%$ (35% for soil) for the Relative Percent Difference (RPD) shall be used for sample values greater than 5X CRDL.

A control limit of \pm CRDL (2X CRDL for soil) shall be used for sample values less than 5X CRDL.

8.0 LABORATORY CONTROL SAMPLE ANALYSIS

The laboratory control sample (LCS) is analyzed to serve as a monitor of the efficiency of the digestion procedure. The inability of the lab to successfully analyze an LCS is indicative of an analytical problem related to the digestion/sample preparation procedures and/or instrument operations.

REVIEW RESULTS: All LCS results are acceptable.

Laboratory Control Sample (LCS) requirements:

All aqueous LCS results must fall within the control limits of 80-120XR, with the exception of Antimony and Silver which have no control limits.

All solid LCS results must fall within the control limits established by the EPA.

9.0 FURNACE ATOMIC ABSORPTION (AA) QC ANALYSIS

Each sample containing analytes requiring analysis by AA undergoes a post-digest spike for those analytes. The post digest spike recovery obtained determines how the analysis will proceed. Whether analysis by Methods of Standards Addition (MSA) will be required. Low spike recovery values may indicate matrix effects are affecting sample results or there may be a problem with the analysis procedure. MSA is generally considered less desirable as it may involve establishing a separate calibration for each analyte in each sample. The linearity of these individual calibration curves is assessed by computing the correlation coefficient. A low correlation coefficient is indicative of a poor calibration curve and the results should be considered suspect.

REVIEW RESULTS: Several samples have post digestion analytical spikes outside of control limits. Results for these samples are therefore estimated and are qualified with a "J". The following samples are qualified:

Selenium: MHP 673, MHP 674, MHP 675, MHP 676, MHP 677, MHT 519, and MHT 525.

GFAA QC Analysis control limit requirements:

For sample concentrations > CRDL, duplicate injections must agree within $\pm 20\%$ Relative Standard Deviation (RSD), (or Coefficient of Variation (CV)), otherwise the sample must be rerun.

Analytical spike recoveries must be between 85-115%R.

The Furnace Atomic Absorption Scheme must be followed as described in the 7/87 SOW, p. E-15.

10.0 ICP SERIAL DILUTION

Serial dilution analysis is also used to ascertain if significant physical or chemical interferences exist due to the sample matrix. A sample is reanalyzed following a five-fold dilution and the results are compared relative to the original, undiluted sample results. Poor comparability indicates that sample results may be affected by relative concentrations of analytes in the sample and some type of chemical or physical interference may be suspected.

REVIEW RESULTS: All ICP Serial Dilution results are acceptable except for Iron (11.5%RD) and Manganese (1%RD). Results for these elements are estimated and are qualified "J".

ICP Serial Dilution requirements:

If the analyte concentration in the original sample is minimally a factor of 50 above the IDL, an analysis of a 5-fold dilution must agree within 10% Difference (%D) of the original results.

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHP669

Lab Name: SKINNER & SHERMAN LABS.

Contract: 68-19-1011

Lab Code: SKINER

Case No.: 14772

SAS No.: 55-1-3

SDG No.: MHP669

Matrix: soil/water(s): SOIL

Lab Sample ID: 08281-016

Level (low/med): LOW

Date Received: 08/28/90

Solids: 78.7

Concentration Units (ug/L or mg/Kg dry weight) MG/KG

CAS No.	Analyte	Concentration	U	M
7429-90-5	Aluminum	1230.00		P
7440-36-0	Antimony	5.20		P
7440-38-2	Arsenic	0.84		F
7440-39-3	Barium	7.00		P
7440-41-7	Beryllium	0.25		P
7440-41-7	Cadmium	0.49		P
7440-70-2	Calcium	199.00		P
7440-47-3	Chromium	1.60		P
7440-48-4	Cobalt	0.74		P
7440-50-8	Copper	1.20		P
7439-89-6	Iron	1580.00		P
7439-92-1	Lead	0.86		F
7439-95-4	Magnesium	348.00		P
7439-96-5	Manganese	29.80		P
7439-97-6	Mercury	0.12		CV
7440-02-0	Nickel	2.70		P
7440-09-7	Potassium	199.00		P
7782-49-2	Selenium	0.48		F
7440-22-4	Silver	2.00		P
7440-23-5	Sodium	53.00		P
7440-28-0	Thallium	0.48		F
7440-62-2	Vanadium	2.60		P
7440-66-6	Zinc	8.90		P
	Cyanide			NR

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: BROWN

Clarity After:

Artifacts: YES

Comments:

STONES

000662

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHP571

Lab Name: SKINNER & SHERMAN LABS.

Contract: 68-02-1018

Lab Code: SKINER

Case No.: 14772

SAS No.: 15112-3

SDG No.: MHP669

Matrix (soil/water): SOIL

Lab Sample ID: 08281-02S

Level (low/med): LOW

Date Received: 08/28/90

% Solids: 80.1

Concentration Units (ug/L or mg/Kg dry weight : MG/KG

CAS No.	Analyte	Concentration	C	S	M
7429-90-5	Aluminum	1230.00			P
7440-36-0	Antimony	5.10	U		P
7440-38-2	Arsenic	0.74	B		F
7440-39-3	Barium	8.00	B		P
7440-41-7	Beryllium	0.24	U		P
7440-41-7	Cadmium	0.49	U		P
7440-70-2	Calcium	169.00	B		P
7440-47-3	Chromium	1.40	B		P
7440-48-4	Cobalt	1.10	B		P
7440-50-8	Copper	1.20	U		P
7439-89-6	Iron	1650.00		=	P
7439-92-1	Lead	0.77			F
7439-95-4	Magnesium	342.00	B		P
7439-96-5	Manganese	48.50		=	P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	2.70	U		P
7440-09-7	Potassium	253.00	B		P
7782-49-2	Selenium	0.48	U		F
7440-22-4	Silver	2.00	U		P
7440-23-5	Sodium	46.10	B		P
7440-28-0	Thallium	0.48	U		F
7440-62-2	Vanadium	2.40	B		P
7440-66-6	Zinc	8.30			P
	Cyanide				NR

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: BROWN

Clarity After:

Artifacts: YES

Comments:

STONES

000003

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHP673

Lab Name: SKINNER & SHERMAN LABS.

Contract: 68-01-1033

Lab Code: SKINER

Case No.: 14770

EAS No.: 5511-0

SDG No.: MHP669

Matrix (soil/water): SOIL

Lab Sample ID: 08281-035

Level (low/med): LOW

Date Received: 08/28/90

Solids: 75.3

Concentration Units (ug/L or mg/Kg dry weight) : MG/KG

CAS No.	Analyte	Concentration	C	M
7429-90-5	Aluminum	2910.00		P
7440-36-0	Antimony	5.40	U	P
7440-38-2	Arsenic	0.81	B	F
7440-39-3	Barium	17.30	B	P
7440-41-7	Beryllium	0.26	U	P
7440-41-7	Cadmium	0.52	U	P
7440-70-2	Calcium	414.00	B	P
7440-47-3	Chromium	2.30	B	P
7440-48-4	Cobalt	1.40	B	P
7440-50-8	Copper	1.30	U	P
7439-89-6	Iron	2860.00	B	P
7439-92-1	Lead	2.50		F
7439-95-4	Magnesium	643.00	B	P
7439-96-5	Manganese	89.60	B	P
7439-97-6	Mercury	0.11	U	CV
7440-02-0	Nickel	2.80	U	P
7440-09-7	Potassium	463.00	B	P
7782-49-2	Selenium	0.51	U	F
7440-22-4	Silver	2.10	U	P
7440-23-5	Sodium	69.30	B	P
7440-28-0	Thallium	0.51	U	F
7440-02-2	Vanadium	3.90	B	P
7440-66-9	Zinc	13.60		P
	Cyanide			NR

Color Before: BROWN

Clarity Before:

Texture: MEDIUM

Color After: BROWN

Clarity After:

Artifacts: YES

Comments:

000604

ROOTS

1
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHP674

Lab Name: SKINNER & SHERMAN LABS.

Contract: 68-1-0028

Lab Code: SKINER

Case No.: 14772

SAS No.: 14772

SDG No.: MHP669

Matrix (soil/water): SOIL

Lab Sample ID: 08281-048

Level (low/med): LOW

Date Received: 08/28/90

% Solids: 93.9

Concentration Units (ug/L or mg/Kg dry wt. spec): MG/KG

CAS No.	Analyte	Concentration	U	M
7429-90-5	Aluminum	5710.00		P
7440-36-0	Antimony	4.30		P
7440-38-2	Arsenic	2.10		F
7440-39-3	Barium	53.90		P
7440-41-7	Beryllium	0.21		P
7440-41-7	Cadmium	0.41		P
7440-70-2	Calcium	1470.00		P
7440-47-3	Chromium	9.00		P
7440-48-4	Cobalt	2.50		P
7440-50-8	Copper	4.60		P
7439-89-6	Iron	9580.00		P
7439-92-1	Lead	2.40		F
7439-95-4	Magnesium	1520.00		P
7439-96-5	Manganese	134.00		P
7439-97-6	Mercury	0.10		CV
7440-02-0	Nickel	3.60		P
7440-09-7	Potassium	1850.00		P
7782-49-2	Selenium	0.42		F
7440-22-4	Silver	1.70		P
7440-23-5	Sodium	193.00		P
7440-28-0	Thallium	0.42		F
7440-62-2	Vanadium	8.50		P
7440-66-6	Zinc	29.60		P
	Cyanide			NR

Color Before: BROWN

Clarity Before:

Texture: FINE

Color After: BROWN

Clarity After:

Artifacts: YES

Comments:

STONES

000005

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHP675

Lab Name: SKINNER & SHERMAN LABS. Contract: 66-1-0018
 Lab Code: SKINER Case No.: 14772 SAS No.: 12-1 SDG No.: MHP669
 Matrix (soil/water): SOIL Lab Sample ID: 08281-055
 Level (low/med): LOW Date Received: 08/28/90
 % Solids: 87.3

Concentration Units (ug/L or mg/Kg dry wt): MG/KG

CAS No.	Analyte	Concentration	U	M
7429-90-5	Aluminum	10400.00		P
7440-36-0	Antimony	4.80		P
7440-38-2	Arsenic	0.94		F
7440-39-3	Barium	56.00		P
7440-41-7	Beryllium	0.37		P
7440-41-7	Cadmium	0.64		P
7440-70-2	Calcium	1050.00		P
7440-47-3	Chromium	6.00		P
7440-48-4	Cobalt	2.70		P
7440-50-8	Copper	2.00		P
7439-89-6	Iron	8030.00		P
7439-92-1	Lead	5.90		F
7439-95-4	Magnesium	1870.00		P
7439-96-5	Manganese	88.80		P
7439-97-6	Mercury	0.10		CV
7440-02-0	Nickel	3.20		P
7440-09-7	Potassium	2180.00		P
7782-49-2	Selenium	0.43		F
7440-22-4	Silver	1.80		P
7440-23-5	Sodium	106.00		P
7440-28-0	Thallium	0.43		F
7440-62-2	Vanadium	10.10		P
7440-66-0	Zinc	31.60		P
	Cyanide			NR

Color Before: BROWN

Clarity Before:

Texture: FINE

Color After: BROWN

Clarity After:

Artifacts: YES

Comments:

STONES

000006

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHP676

Lab Name: SKINNER & SHERMAN LABS.

Contract: 88-09-0083

Lab Code: SKINER

Date No.: 14772

SAS No.: 5512-0

SDG No.: MHP669

Matrix (soil/water): SOIL

Lab Sample ID: 08281-065

Level (low/med): LOW

Date Received: 08/28/90

% Solids: 96.0

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	2	M
7429-90-5	Aluminum	5790.00			P
7440-36-0	Antimony	4.40	U		P
7440-38-2	Arsenic	1.10	B		F
7440-39-3	Barium	39.80	B		P
7440-41-7	Beryllium	0.21	U		P
7440-41-7	Cadmium	0.42	U		P
7440-70-2	Calcium	491.00	B		P
7440-47-3	Chromium	32.60			P
7440-48-4	Cobalt	4.20	B		P
7440-50-8	Copper	4.60	B		P
7439-89-6	Iron	8580.00		E	P
7439-92-1	Lead	2.20			F
7439-95-4	Magnesium	1380.00			P
7439-96-5	Manganese	111.00		E	P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	3.00	B		P
7440-09-7	Potassium	2050.00			P
7782-49-2	Selenium	0.40	U		F
7440-22-4	Silver	1.70	U		P
7440-23-5	Sodium	153.00	B		P
7440-28-0	Thallium	0.40	U		F
7440-62-2	Vanadium	8.60	B		P
7440-66-0	Zinc	24.30			P
	Cyanide				NR

Color Before: BROWN

Clarity Before:

Texture: FINE

Color After: BROWN

Clarity After:

Artifacts: YES

Comments:

STONES

000067

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHP677

Lab Name: SKINNER & SHERMAN LABS.

Contract: 68-09-0033

Lab Code: SKINER

Case No.: 14772

BAS No.: 5512HQ

SDG No.: MHP669

Matrix (soil/water): SOIL

Lab Sample ID: 08281-075

Level (low/med): LOW

Date Received: 08/28/90

% Solids: 92.6

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	D	M
7429-90-5	Aluminum	7620.00			P
7440-36-0	Antimony	4.40	U		P
7440-38-2	Arsenic	1.50	B		F
7440-39-3	Barium	69.80			P
7440-41-7	Beryllium	0.21	U		P
7440-41-7	Cadmium	0.42	U		P
7440-70-2	Calcium	1670.00			P
7440-47-3	Chromium	4.30			P
7440-48-4	Cobalt	2.30	B		P
7440-50-8	Copper	3.10	B		P
7439-89-6	Iron	8470.00		E	P
7439-92-1	Lead	4.00			F
7439-95-4	Magnesium	2350.00			P
7439-96-5	Manganese	146.00		E	P
7439-97-6	Mercury	0.09	U		CV
7440-02-0	Nickel	2.30	U		P
7440-09-7	Potassium	2060.00			P
7782-49-2	Selenium	0.43	U	W	F
7440-22-4	Silver	1.70	U		P
7440-23-5	Sodium	102.00	B		P
7440-28-0	Thallium	0.43	U		F
7440-62-2	Vanadium	10.10	B		P
7440-66-6	Zinc	35.20			P
	Cyanide				NR

Color Before: BROWN

Clarity Before:

Texture: MEDIUM

Color After: BROWN

Clarity After:

Artifacts: YES

Comments:

000008

STONES

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHT519

Lab Name: SKINNER & SHERMAN LABS.

Contract: 88-DR-0038

Lab Code: SKINER

Case No.: 14772

EAS No.: 5512HQ

BDG No.: MHP659

Matrix (soil/water): SOIL

Lab Sample ID: D8281-085

Level (low/med): LOW

Date Received: 08/28/90

% Solids: 73.0

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	M
7429-90-5	Aluminum	2860.00		P
7440-36-0	Antimony	5.80	U	P
7440-38-2	Arsenic	0.54	U	F
7440-39-3	Barium	24.80	B	P
7440-41-7	Beryllium	0.27	U	P
7440-41-7	Cadmium	0.55	U	P
7440-70-2	Calcium	758.00	B	P
7440-47-3	Chromium	4.80		P
7440-48-4	Cobalt	2.10	B	P
7440-50-8	Copper	2.70	B	P
7439-89-6	Iron	4220.00	E	P
7439-92-1	Lead	2.70		F
7439-95-4	Magnesium	1250.00	B	P
7439-96-5	Manganese	51.10	E	P
7439-97-6	Mercury	0.13	U	CV
7440-02-0	Nickel	3.00	U	P
7440-09-7	Potassium	722.00	B	P
7782-49-2	Selenium	0.54	U!-w	F
7440-22-4	Silver	2.20	U	P
7440-23-5	Sodium	78.40	B	P
7440-28-0	Thallium	0.54	U	F
7440-62-2	Vanadium	5.80	B	P
7440-66-9	Zinc	18.20		P
	Cyanide			NR

Color Before: BROWN

Clarity Before:

Texture: FINE

Color After: BROWN

Clarity After:

Artifacts: YES

Comments:

ROOTS

000609

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHT521

Lab Name: SKINNER & SHERMAN LABS.

Contract: 58-D9-0038

Lab Code: SKINER

Case No.: 1-772

BAS No.: 5512HQ

SDG No.: MHP669

Matrix (soil/water): SOIL

Lab Sample ID: 08281-095

Level (low/med): LOW

Date Received: 08/28/90

Solids: 79.9

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	G	M
7429-90-5	Aluminum	1380.00			P
7440-36-0	Antimony	5.00	U		P
7440-38-2	Arsenic	0.50	B		P
7440-39-3	Barium	11.60	B		F
7440-41-7	Beryllium	0.24	U		P
7440-41-7	Cadmium	0.47	U		P
7440-70-2	Calcium	183.00	B		P
7440-47-3	Chromium	1.30	B		P
7440-48-4	Cobalt	0.71	U		P
7440-50-8	Copper	1.20	U		P
7439-89-6	Iron	1770.00		E	P
7439-92-1	Lead	0.85			F
7439-95-4	Magnesium	405.00	B		P
7439-96-5	Manganese	33.10		E	P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	2.60	U		P
7440-09-7	Potassium	393.00	B		P
7782-49-2	Selenium	0.50	U		F
7440-22-4	Silver	1.90	U		P
7440-23-5	Sodium	80.50	B		P
7440-28-0	Thallium	0.50	U		F
7440-62-2	Vanadium	2.00	B		P
7440-66-0	Zinc	7.80			P
	Cyanide				NR

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: BROWN

Clarity After:

Artifacts: YES

Comments:

STONES

000010

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHT524

Lab Name: SKINNER & SHERMAN LABS.

Contract: 88-DG-0088

Lab Code: SKINER

Case No.: 14772

SAS No.: 5512HQ

SDG No.: MHP669

Matrix (soil/water): SOIL

Lab Sample ID: 08281-105

Level (low/med): LOW

Date Received: 08/28/90

% Solids: 76.8

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	D	M
7429-90-5	Aluminum	1780.00			P
7440-36-0	Antimony	5.10	U		P
7440-38-2	Arsenic	0.51	U		F
7440-39-3	Barium	14.20	B		P
7440-41-7	Beryllium	0.24	U		P
7440-41-7	Cadmium	0.49	U		P
7440-70-2	Calcium	386.00	B		P
7440-47-3	Chromium	3.10			P
7440-48-4	Cobalt	0.97	B		P
7440-50-8	Copper	1.20	U		P
7439-89-6	Iron	2210.00		E	P
7439-92-1	Lead	1.30			F
7439-95-4	Magnesium	653.00	B		P
7439-96-5	Manganese	24.30		E	P
7439-97-6	Mercury	0.13	U		CV
7440-02-0	Nickel	2.70	U		P
7440-09-7	Potassium	405.00	B		P
7782-49-2	Selenium	0.51	U		F
7440-22-4	Silver	1.90	U		P
7440-23-5	Sodium	71.80	B		P
7440-28-0	Thallium	0.51	U		F
7440-62-2	Vanadium	3.30	B		P
7440-66-6	Zinc	8.50			P
	Cyanide				NR

Color Before: BROWN

Clarity Before:

Texture: FINE

Color After: BROWN

Clarity After:

Artifacts: YES

Comments:

STONES

000011

U.S. EPA - 105
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

WHT525

Lab Name: SKINNER & SHERMAN LABS. Contract: 105-10000

Lab Code: SKINER Case No.: 14772 SAS No. 10-1 SDG No.: MHP669

Matrix (soil/water): SOIL Sample ID: 08281-115

Level (low/med): LOW Received: 08/28/90

% Solids: 83.6

Concentration Units (ug/L or mg/Kg dry wt) MG/KG

CAS No.	Analyte	Concentration	Y
7429-90-5	Aluminum	2650.00	P
7440-36-0	Antimony	4.30	P
7440-38-2	Arsenic	0.46	P
7440-39-3	Barium	19.30	P
7440-41-7	Beryllium	0.23	P
7440-41-7	Cadmium	0.46	P
7440-70-2	Calcium	763.00	P
7440-47-3	Chromium	4.30	P
7440-48-4	Cobalt	1.80	P
7440-50-8	Copper	2.10	P
7439-89-6	Iron	3650.00	P
7439-92-1	Lead	2.20	F
7439-95-4	Magnesium	1040.00	P
7439-96-5	Manganese	37.60	P
7439-97-6	Mercury	0.16	CV
7440-02-0	Nickel	2.50	P
7440-09-7	Potassium	627.00	P
7782-49-2	Selenium	0.46	F
7440-22-4	Silver	1.80	P
7440-23-5	Sodium	35.30	P
7440-28-0	Thallium	0.46	F
7440-62-2	Vanadium	4.90	P
7440-66-5	Zinc	15.10	P
	Cyanide		NR

Color Before: BROWN

Clarity Before:

Texture: MEDIUM

Color After: BROWN

Clarity After:

Artifacts: YES

Comments:

000612

ROOTS

10
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Lab Name: EWL-TULSA Contract: 5511HQ10 HP017
Lab Code: EWOK Case No.: 14772 SAS No.: 55110 SDG No.: HP017
Matrix: soil/water SOIL Lab Sample ID: 15506
Sample wt/vol: 20.0 g/mL g Lab File ID: FA008
Level: (low/med) LOW Date Received: 08/27/90
% Moisture: not dec. 9 dec. Date Extracted: 08/29/90
Extraction: (SepF/Cont/Sonc) SDNC Date Analyzed: 09/20/90
GPC Cleanup: (Y/N) Y pH: 7.9 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/g)	ug/g
99-09-1	3-Nitroaniline	1500	10
83-32-6	Acenaphthene	730	10
51-28-5	2,4-Dinitrophenol	3500	10
100-02-7	4-Nitrophenol	3500	10
132-84-9	Dibenzofuran	730	10
121-14-2	2,4-Dinitrotoluene	730	10
84-62-2	Diethylphthalate	730	10
7005-72-3	4-Chlorophenyl-phenylether	730	10
86-73-7	Fluorene	730	10
100-01-6	4-Nitroaniline	3500	10
534-52-1	4,6-Dinitro-2-Methylphenol	3500	10
96-70-6	N-Nitrosodiphenylamine (1)	730	10
101-55-3	4-Bromophenyl-phenylether	730	10
118-74-1	Hexachlorobenzene	730	10
87-86-5	Pentachlorophenol	1500	10
85-01-8	Phenanthrene	730	10
120-12-7	Anthracene	730	10
84-74-2	Di-n-Butylphthalate	730	10
206-44-0	Fluoranthene	730	10
129-00-0	Pyrene	730	10
85-28-7	Butylbenzylphthalate	730	10
91-84-1	3,3'-Dichlorobenzidine	1500	10
56-55-3	Benzo(a)Anthracene	730	10
218-01-9	Chrysene	730	10
117-81-7	bis(2-Ethylhexyl)Phthalate	730	10
117-84-0	Di-n-Octyl Phthalate	730	10
205-99-2	Benzo(b)Fluoranthene	730	10
207-08-9	Benzo(k)Fluoranthene	730	10
50-32-8	Benzo(a)Pyrene	730	10
193-37-7	Indeno(1,2,3-cd)Pyrene	730	10
53-70-7	Dibenz(a,h)Anthracene	730	10
191-24-1	Benzo(g,h,i)Perylene	730	10

(1) - Cannot be separated from Diphenylamine

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1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HK027

Name: BWL-TULSA

Contract: 5511H010

Code: SWOK

Case No.: 14772

SAS No.: 55110

SDS No.: HK027

Matrix: (soil/water) SOIL

Lab Sample ID: 55506

Sample wt/vol: 30.0 (g/mL) 3

Lab File ID: FA002

Level: (low/med) LOW

Date Received: 08/27/90

Moisture: not dec. 2 dec.

Date Extracted: 08/29/90

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 09/20/90

SPC Cleanup: (Y/N) Y pH: 7.9

Dilution Factor: 1.0

Number TICs Found: 7

CONCENTRATION UNITS:
(ug/L or ug/kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN COMPOUND	15.99	150	J 800
2.	UNKNOWN HYDROCARBON	25.06	220	J
3.	UNKNOWN HYDROCARBON	26.29	220	J

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE

Name: EWL-FULSA Contract: 5511-0010 ROOT
Lab Code: ENOV Case No.: 14773 EAS No.: 55110 EDG No.: PR007
Matrix: SOIL/WATER WATER Lab Sample ID: 55508
Sample Wt/Vol: 250 g/mL ML Lab File ID: 54015
Level: (low/med) LOW Date Received: 08/27/90
Moisture: not dec. dec. Date Extracted: 09/20/90
Extraction: (SoxH/Cont/Sonc) CONT Date Analyzed: 09/20/90
GPC Cleanup: (Y/N) N PH: 7.0 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/g) <u>UG/L</u>	
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108-95-2	Phenol	40	U
111-44-4	bis(2-Chloroethyl) Ether	40	U
95-57-8	2-Chlorophenol	40	U
541-73-1	1,3-Dichlorobenzene	40	U
106-46-7	1,4-Dichlorobenzene	40	U
100-51-2	Benzyl Alcohol	40	U
95-50-1	1,2-Dichlorobenzene	40	U
95-48-7	2-Methylphenol	40	U
108-90-1	bis(2-Chloroisopropyl) Ether	40	U
106-44-5	4-Methylphenol	40	U
621-64-7	N-Nitroso-Di-n-Propylamine	40	U
67-72-1	Hexachloroethane	40	U
98-95-3	Nitrobenzene	40	U
78-59-1	Isophorone	40	U
88-75-5	3-Nitrophenol	40	U
105-67-9	2,4-Dimethylphenol	40	U
65-85-0	Benzoic Acid	40	U
111-91-1	bis(2-Chloroethoxy) Methane	200	U
120-83-2	2,4-Dichlorophenol	40	U
120-82-1	1,2,4-Trichlorobenzene	40	U
91-20-3	Naphthalene	40	U
106-47-8	4-Chloroaniline	40	U
87-68-7	Hexachlorobutadiene	40	U
59-50-7	4-Chloro-3-Methylphenol	40	U
91-57-2	2-Methylnaphthalene	40	U
77-47-4	hexachlorocyclopentadiene	40	U
88-06-3	2,4,6-Trichlorophenol	40	U
95-95-4	2,4,5-Trichlorophenol	40	U
91-58-3	2-Chloronaphthalene	200	U
89-74-1	2-Nitroaniline	40	U
131-11-7	Dimethyl Phthalate	200	U
208-91-6	Acenaphthene	40	U
606-20-2	2,6-Dinitrotoluene	40	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Name: EWL-TULSA Contract: 5511-4010 4007
 ID Code: SWOK Case No.: 14770 SAS No.: 55110 SDS No.: 40027
 Matrix: (soil/water) WATER Lab Sample ID: 153008
 Sample Wt/Vol: 250 (g/mL) ML Lab File ID: 50016
 Level: (low/med) LOW Date Received: 08/27/90
 Moisture: not dec. dec. Date Extracted: 08/30/90
 Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 09/20/90
 SPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/L</u>	
99-09-1	3-Nitroaniline	200	U
93-32-8	Acenaphthene	40	U
51-28-5	2,4-Dinitrophenol	200	U
100-02-7	4-Nitrophenol	200	U
132-84-9	Dibenzofuran	40	U
121-14-2	2,4-Dinitrotoluene	40	U
84-86-2	Diethylphthalate	40	U
7005-72-3	4-Chlorophenyl phenylether	40	U
86-73-7	Fluorene	40	U
100-01-6	4-Nitroaniline	40	U
534-52-1	4,6-Dinitro-2-Methylphenol	200	U
96-30-6	N-Nitrosodiphenylamine (1)	200	U
101-55-3	4-Bromophenyl phenylether	40	U
118-74-1	Hexachlorobenzene	40	U
87-86-5	Pentachlorophenol	40	U
85-01-9	Phenanthrene	200	U
120-12-7	Anthracene	40	U
84-74-2	Di-n-Butylphthalate	40	U
206-44-0	Fluoranthene	2	150 U
129-00-0	Pyrene	40	U
85-88-7	Butylbenzylphthalate	40	U
91-94-1	3,3'-Dichlorobenzidine	40	U
56-55-7	Benzo(a)Anthracene	30	U
218-01-9	Chrysene	40	U
117-91-7	dis(2-Ethylhexyl)Phthalate	40	U
117-84-0	Di-n-Octyl Phthalate	40	150 U
205-99-2	Benzo(b)Fluoranthene	40	U
207-08-9	Benzo(k)Fluoranthene	40	U
50-72-5	Benzo(a)Pyrene	40	U
193-39-3	Indeno(1,2,3-cd)Pyrene	40	U
53-70-5	Dibenz(a,h)Anthracene	40	U
191-24-3	Benzo(g,h,i)Perylene	40	U

() - Cannot be separated from Diphenylamine

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. _____

Lab Name: EML-TULSA Contract: SE114010 #007
Lab Code: SNOW Case No.: 14772 GAS No.: SE110 SDG No.: #007
Matrix: (Soil/Water) WATER Lab Sample ID: 153018
Sample wt/vol: 250 g/mL / ML Lab File ID: 15018
Level: (low/med) LOW Date Received: 08-27-90
Moisture: not dec. dec. Date Extracted: 08-30-90
Extraction: (Soxh/Cont/Sonc) CONT Date Analyzed: 09-20-90
PC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.0

Number TICs Found: 5

CONCENTRATION UNITS:
µg/L or ng/mg or µg/g

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	g
1. 96764	Phenol, 2,4-bis(1,1-dimethyl)	14.14		
2.	UNKNOWN COMPOUND	15.74	8.0130	(L)
3.	UNKNOWN COMPOUND	17.27	32	µg
4. 57103	Hexadecanoic acid (PDI)	18.40	15	µg
5.	UNKNOWN COMPOUND	18.84	3.013	
			8.013	

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SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Sample Name: BWL-TULSA Contract: 5511H010 HK008
 Sample Code: SWCK Case No.: 14770 SAS No.: 55110 SDG No.: W0007
 Matrix: (soil/water) WATER Lab Sample ID: 15500
 Sample wt/vol: 1000 (g/mL) ML Lab File ID: FA017
 Level: (low/med) LOW Date Received: 08/27/90
 Moisture: not dec. dec. Date Extracted: 08/30/90
 Extraction: (SopF/Cont/Sonc) CONT Date Analyzed: 09/20/90
 % Cleanup: (Y/N) N SH: 7.1 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L or ug/kg; ug/L	Q
108-95-2	Phenol	10	U
111-34-4	bis(2-Chloroethoxy)Ether	10	U
95-57-3	Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-90-1	bis(2-Chloroisopropoxy)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-7	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-2	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-1	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,6-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-71-4	3-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Name: BWL-TULSA Contract: 55114010 4002
Lab Code: SMOK Case No.: 14770 SAS No.: 55110 SDG No.: 40027
Matrix: (Solid/Liquid) WATER Lab Sample ID: 7552 9
Sample Wt/Vol: 1000 (g/mL) ML Lab File ID: FA017
Level: (low/med) LOW Date Received: 08/07/90
Moisture: not dec. dec. Date Extracted: 08/09/90
Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 09/09/90
PC Cleanup: (Y/N) N pH: 7.1 Dilution Factor: 1.0

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/kg) UG/L

99-04-2	3-Nitroaniline	50	U
83-72-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-84-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-8	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodichenvlamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
119-74-1	Hexachlorobenzene	10	U
97-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	100.2	100.2
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
95-58-7	Butylbenzylphthalate	10	U
91-84-1	3,3'-Dichlorobenzidine	20	U
56-75-7	Benzo(a)Anthracene	10	U
218-01-5	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-1	Benzo(b)Fluoranthene	10	U
207-08-3	Benzo(k)Fluoranthene	10	U
50-72-8	Benzo(a)Pyrene	10	U
153-33-5	Indeno(1,2,3-cd)Pyrene	10	U
57-70-1	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Dichenvlamine

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Name: BWL-TULSA

Contract: EE104010

DATE

Lab Code: SNOP

Case No.: 14772

SAS No.: EE110

EDS No.: 40007

Matrix: soil/water; WATER

Lab Sample ID: EE508

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: EE517

Level: (low/med) LOW

Date Received: 03/27/90

Moisture: not dec. dec.

Date Extracted: 03/30/90

Extraction: (SepF/Cont/Sonc) CONT

Date Analyzed: 07-20-90

PC Cleanup: (Y/N) N pH: 7.1

Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS:

(ug/L or ug/kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Name: BWL-TULSA Contract: 55114010 #0027
 ID Code: EWOK Case No.: 14772 SAS No.: 55110 SDG No.: #0027
 Matrix: (soil/water) WATER Lab Sample ID: 55510
 Sample wt/vol: 1000 (ug/mL) ML Lab File ID: 55019
 Level: (low/med) LOW Date Received: 09/27/90
 Moisture: not dec. dec. Date Extracted: 09/30/90
 Extraction: (SepF/Cont/Sonic) CONT Date Analyzed: 09/30/90
 PC Cleanup: (Y/N) N pH: 7.2 Dilution Factor: 1.0

CAS NO. COMPOUND CONCENTRATION UNITS:
 (ug/L or ug/kg) UG/L 0

105-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethoxy)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-50-1	bis(2-Chloroisopropoxy)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-35-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-93-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-3	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-55-4	2,4,6-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
121-11-3	Dimethyl Phthalate	10	U
208-91-8	Acenaphthylene	10	U
606-29-2	2,6-Dinitrotoluene	10	U

10
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Name: BWL-TULSA

Contract: 55114010

- 019

Job Code: SWOK

Case No.: 14772

SAS No.: 55110

SDG No.: HK027

Matrix: (Soil/Water) WATER

Lab Sample ID: 55110

Sample Wt/Vol: 1000 (g/mL) ML

Lab File ID: 55018

Level: (Low/Med) LOW

Date Received: 08/07/90

Moisture: not used dec.

Date Extracted: 08/10/90

Extraction: (SoxH/Cont/Sonc) CONT

Date Analyzed: 08/30/90

PC Cleanup: (Y/N) N

OH: 1.2

Dilution Factor: 1.0

CAS NO.

COMPOUND

CONCENTRATION UNITS:

ug/L or ug/Kg: UG/L

0

99-09-1	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-23-5	2,4-Dinitrophenol	50	U
100-01-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-1	2,4-Dinitrotoluene	10	U
84-66-2	Diethylthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-8	4-Nitroaniline	50	U
534-51-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-1	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-8	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-3	Di-n-Butylthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-65-7	Butylbenzylthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-1	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-1	Benzo(b)Fluoranthene	10	U
207-08-6	Benzo(k)Fluoranthene	10	U
50-12-6	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-1	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

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1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Name: BWL-TULSA Contract: SE114010 4007
Code: EWOM Case No.: 14772 SAS No.: SE110 SDG No.: 4007
Matrix: (soil, water) WATER Lab Sample ID: SE110
Sample wt/vol: 1000 (g/mL) ML Lab File ID: EP019
Level: (low/med) LOW Date Received: 08/07/90
Moisture: not dec. dec. Date Extracted: 08/30/90
Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 09/10/90
Cleanup: (Y/N) N OR: T.C Dilution Factor: 1.0

CONCENTRATION UNITS:

(ug/L or ug/kg) UG/L

Number TICs found: 2

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Sample Name: EWL-TULEA Contract: 55114010 PK045
 Code: EWOM Case No.: 14771 SAS No.: 55110 SDG No.: PK045
 Matrix: (soil/water) WATER Lab Sample ID: 755711
 Sample wt/vol: 1000 g/mL ML Lab File ID: 50040
 Ref: (low/med) LOW Date Received: 10/27/90
 Moisture: not dec. dec. Date Extracted: 10/20/90
 Extraction: (Sox/Cont/Sonc) CONT Date Analyzed: 10/21/90
 Cleanup: (Y/N) N pH: 7.1 Dilution Factor: 1.0

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/kg) UG/L 0

108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isochloroene	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	10	U
111-91-1	bis(2-Chloroethoxy)Methane	50	U
120-82-0	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-63-3	Hexachlorocyclopentadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-1	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	10	U
91-59-7	2-Chloronaphthalene	50	U
88-74-4	3-Nitroaniline	10	U
131-11-7	Dimethyl Phthalate	50	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

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SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

SPR SAMPLE NO.

4045

Name: EWL-TULEA Contract: EE11H010

Code: SWCH Case No.: 14772 SAS No.: EE110 SDG No.: HK027

Matrix: (soil/water) WATER Lab Sample ID: EEET11

Sample wt/vol: 1000 g/mL ML Lab File ID: EE010

Level: (low/med) LOW Date Received: 08/27/90

Moisture: not dec. dec. Date Extracted: 08/30/90

Extraction: (Sep/Cont/Sond) CONT Date Analyzed: 09/01/90

GC Cleanup: (Y/N) N SH: 7.4 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/L</u>	G
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99-09-2	3-Nitroaniline	50	U
83-32-8	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-84-9	Dibenzofuran	10	U
121-14-3	2,4-Dinitrotoluene	10	U
84-66-2	Diethylthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodichenvlamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-6	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylthalate	10	U
91-94-1	2,3-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	5	BD U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-6	Benzo(k)Fluoranthene	10	U
50-72-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-79-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Dichenvlamine

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1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

-P045

Name: EWL-TULSA

Contract: 55114010

Code: EW01

Case No.: 14770

EAS No.: 55110

SDG No.: HK007

Matrix: (soil/water) WATER

Lab Sample ID: 155011

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: 20040

Level: (low/med) LOW

Date Received: 03/27/90

Mixture: not dec. dec.

Date Extracted: 03/30/90

Extraction: (SepF/Cont/Sonc) CONT

Date Analyzed: 03/31/90

Cleanup: (Y/N) N pH: 7.4

Dilution Factor: 1.0

Other TICs found: 0

CONCENTRATION UNITS:

(ug/L or ug/kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SFA SAMPLE NO.

046

Name: BWL-TULSA Contract: 5511010
Code: BWOF Case No.: 14722 SAS No.: 55110 SDG No.: 55017
Matrix: (soil/water) SOIL Lab Sample ID: 755710
Soil wt/vol: 20.0 (g/mL) g Lab File ID: 55008
Moist: (low/med) LOW Date Received: 08/27/90
Moisture: not dec. 23 dec. Date Extracted: 08/28/90
Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 09/20/90
Cleanup: (Y/N) Y pH: 7.0 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u>	g
108-95-3	Phenol	860	10
111-44-4	bis(2-Chloroethyl) Ether	860	10
95-57-5	3-Chlorophenol	860	10
541-73-1	1,3-Dichlorobenzene	860	10
106-46-7	1,4-Dichlorobenzene	860	10
100-51-6	Benzyl Alcohol	860	10
95-50-1	1,2-Dichlorobenzene	860	10
95-48-7	2-Methylphenol	860	10
108-60-1	bis(2-Chloroisopropyl) Ether	860	10
106-44-5	4-Methylphenol	860	10
621-54-7	N-Nitroso-Di-n-Propylamine	860	10
67-72-1	Hexachloroethane	860	10
98-95-7	Nitrobenzene	860	10
78-59-1	Isophorone	860	10
88-75-5	2-Nitrophenol	860	10
105-17-3	2,4-Dimethylphenol	860	10
65-85-0	Benzoic Acid	4200	10
111-91-1	bis(2-Chloroethoxy) Methane	860	10
120-83-2	2,4-Dichlorophenol	860	10
120-82-1	1,2,4-Trichlorobenzene	860	10
91-20-3	Naphthalene	860	10
106-47-2	4-Chloroaniline	860	10
87-68-3	Hexachlorobutadiene	860	10
59-50-7	4-Chloro-3-Methylphenol	860	10
91-57-5	2-Methylnaphthalene	860	10
77-47-4	Hexachlorocyclopentadiene	860	10
88-06-2	2,4,6-Trichlorophenol	350	10
95-95-4	2,4,5-Trichlorophenol	4200	10
91-58-7	2-Chloronaphthalene	860	10
88-74-4	3-Nitroaniline	4200	10
131-11-7	Dimethyl Phthalate	860	10
208-96-5	Acenaphthylene	860	10
506-20-2	2,6-Dinitrotoluene	860	10

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

4K046

Name: BWL-TULSA Contract: 5511HQ1
Code: SWOK Case No.: 14732 SAS No.: 5511Q SDE No.: 4K007
Matrix: (soil/water) SOIL Lab Sample ID: 755012
Sample wt/vol: 20.0 (g/mL) 5 Lab File ID: 540029
Level: (low/med) LOW Date Received: 08/27/90
Moisture: not dec. 23 dec. Date Extracted: 08/29/90
Extraction: (SoxH/Cont/Sonic) SONIC Date Analyzed: 09/20/90
Cleanup: (Y/N) Y pH: 7.0 Dilution Factor: 1.0

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG 0

99-09-2	3-Nitroaniline	4200	U
83-32-9	Acenaphthene	860	U
51-28-5	2,4-Dinitrophenol	4200	U
100-02-7	4-Nitrophenol	4200	U
132-84-9	Dibenzofuran	860	U
121-14-2	2,4-Dinitrotoluene	860	U
84-66-2	Diethylphthalate	860	U
7005-72-3	4-Chlorophenyl-phenylether	860	U
86-73-7	Fluorene	860	U
100-01-6	4-Nitroaniline	4200	U
534-52-1	4,6-Dinitro-2-Methylphenol	4200	U
86-10-6	N-Nitrosodiphenylamine (1)	860	U
101-55-3	4-Bromophenyl-phenylether	860	U
118-74-1	Hexachlorobenzene	860	U
87-86-5	Pentachlorophenol	4200	U
85-01-8	Phenanthrene	860	U
120-12-7	Anthracene	860	U
84-74-2	Di-n-Butylphthalate	860	U
206-44-0	Fluoranthene	860	U
129-00-0	Pyrene	860	U
85-68-7	Butylbenzylphthalate	860	U
91-94-1	3,3'-Dichlorobenzidine	1700	U
56-55-3	Benzo(a)Anthracene	860	U
218-01-9	Chrysene	860	U
117-81-7	bis(2-Ethylhexyl)Phthalate	74	J
117-84-0	Di-n-Octyl Phthalate	860	U
205-99-2	Benzo(b)Fluoranthene	860	U
207-08-4	Benzo(k)Fluoranthene	860	U
50-32-5	Benzo(a)Pyrene	860	U
193-33-5	Indeno(1,2,3-cd)Pyrene	860	U
53-70-3	Dibenz(a,h)Anthracene	860	U
191-24-2	Benzo(g,h,i)Perylene	860	U

(1) - Cannot be separated from Diphenylamine

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IF
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

47048

Name: BWL-FILER Contract: EE10-010
Code: EWOK Case No.: 14772 SAS No.: EE110 SDG No.: 47007
Matrix: (soil/water) SOIL Lab Sample ID: EE5710
Sample wt/vol: 20.0 (g/mL) g Lab File ID: EE009
Rel: (low/med) LOW Date Received: 08/27/90
Moisture: not dec. 23 dec. Date Extracted: 08/29/90
Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 09/03/90
Cleanup: (Y/N) Y CH: 7.0 Dilution Factor: 1.0

CONCENTRATION UNITS:
µg/L or ng/g or µg/kg

Other TICs found: 4

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN COMPOUND	3.57	5000	13
2.	UNKNOWN COMPOUND	15.92	520	13
3.	UNKNOWN COMPOUND	18.19	260	13
4. 57103	Hexadecanoic acid (PCI)	18.35	690	13

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE

Name: BWL-TULSA

Contract: 5511HQ10

HK047

Code: BWDK

Case No.: 14772

SAS No.: 5511Q

SDS No.: HK027

ix: (soil/water) WATER

Lab Sample ID: 155317

ple wt/vol: 1000 (g/mL) ML

Lab File ID: FA057

all: (low/med) LOW

Date Received: 08/27/90

Mixture: not dec. dec.

Date Extracted: 08/30/90

raction: (SepF/Cont/Sonc) CONT

Date Analyzed: 09/21/90

Cleanup: (Y/N) N pH: 7.5

Dilution Factor: 1.0

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/kg) UG/L

Q

108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
99-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-57-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Napthalene	10	U
106-47-3	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-5	2-Methylnapthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-55-4	2,4,5-Trichlorophenol	50	U
91-59-7	2-Chloronapthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
128-96-8	Acenaphthylene	10	U
606-20-1	2,6-Dinitrotoluene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

44047

Name: SWL-TULSA Contract: 5511HQ10
Code: SWOK Case No.: 14772 SAS No.: 5511Q SDG No.: HK027
Matrix: (soil/water) WATER Lab Sample ID: 555112
Sample wt/vol: 1000 (g/mL) ML Lab File ID: FA027
Risk: (low/med) LOW Date Received: 08/27/90
Disturbance: not dec. dec. Date Extracted: 08/30/90
Extraction: (SepF/Cont/Sonic) CONT Date Analyzed: 09/21/90
Cleanup: (Y/N) N pH: 7.5 Dilution Factor: 1.0

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/kg) UG/L Q

99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	5	BJL
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-6	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-19-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

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1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HP047

Name: SWL-TULSA

Contract: SE114010

Code: EWOK

Case No.: 14770

SAS No.: SE110

SDG No.: 4K007

Matrix: (soil/water) WATER

Lab Sample ID: SE110

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: EQ057

Level: (low/med) LOW

Date Received: 08/27/90

Disturbance: not dec. dec.

Date Extracted: 08/30/90

Extraction: (SepF/Cont/Sonc) CONT

Date Analyzed: 09/11/90

Cleanup: (Y/N) N pH: 7.5

Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:

(ug/L or ug/kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====

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SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Name: BWL-TULSA Contract: 5511HQ10 HPLAB

Code: SWOP Case No.: 14772 BAS No.: 5511D SDG No.: 44027

rix: (soil/water) SOIL Lab Sample ID: 755214

ple wt/vol: 10.0 ug/mL: 9 Lab File ID: PA010

ol: (low/med) LOW Date Received: 08/27/90

ixture: not dec. 20 dec. Date Extracted: 08/29/90

raction: (SoxH/Cont/SoxH) SONC Date Analyzed: 09/04/90

Cleanup: (Y/N) Y pH: 5.5 Dilution Factor: 1.0

CONCENTRATION UNITS:

ug/L or ug/kg ug/kg 0

CAS NO.	COMPOUND		
108-95-2	Phenol	820	U
111-44-4	bis(2-Chloroethoxy) Ether	820	U
95-57-8	2-Chlorophenol	820	U
541-73-1	1,3-Dichlorobenzene	820	U
106-46-7	1,4-Dichlorobenzene	820	U
100-51-6	Benzyl Alcohol	820	U
95-50-1	1,2-Dichlorobenzene	820	U
95-48-7	2-Methylphenol	820	U
108-60-1	bis(2-Chloroisopropyl) Ether	820	U
106-44-5	4-Methylphenol	820	U
621-64-7	N-Nitroso-Di-n-Propylamine	820	U
67-72-1	Hexachloroethane	820	U
98-95-3	Nitrobenzene	820	U
78-59-1	Isopropylene	820	U
88-75-5	3-Nitrophenol	820	U
105-67-8	2,4-Dimethylphenol	820	U
65-85-0	Benzoic Acid	4000	U
111-91-1	bis(2-Chloroethoxy) Methane	820	U
120-87-3	2,4-Dichlorophenol	820	U
120-82-1	1,2,4-Trichlorobenzene	820	U
91-30-3	Naphthalene	820	U
106-47-8	4-Chloroaniline	820	U
87-68-7	Hexachlorobutadiene	820	U
59-50-7	4-Chloro-3-Methylphenol	820	U
91-57-8	3-Methyl-naphthalene	820	U
77-47-4	Hexachlorocyclopentadiene	820	U
88-06-1	2,3,6-Trichlorophenol	820	U
67-93-4	2,4,5-Trichlorophenol	4000	U
91-58-7	3-Chloronaphthalene	820	U
88-74-4	2-Nitroaniline	4000	U
131-11-3	Dimethyl Phthalate	820	U
108-96-8	Acenaphthylene	820	U
606-20-2	2,6-Dinitrotoluene	820	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Site: BWL-TULEA

Contract: 551-H010

#K048

Code: ENOK

Case No.: 14772

SAS No.: 55110

SDG No.: 4-027

Matrix: (soil/water) SOIL

Lab Sample ID: 75571-

Sample wt/vol: 20.0 (g/mL) 5

Lab File ID: 52070

Alert: (low/med) LOW

Date Received: 08/27/80

Moisture: not dec. 20 dec.

Date Extracted: 08/28/80

Extraction: (Soxh/Cont/Bond) SONC

Date Analyzed: 08/30/80

Cleanup: (Y/N) Y

pH: 6.5

Dilution Factor: 1.0

CONCENTRATION UNITS:

CAS NO.

COMPOUND

(ug/L or ug/kg) UG/KG

3

99-09-2	3-Nitroaniline	4000	U
83-32-3	Acenaphthene	820	U
51-28-5	2,4-Dinitrophenol	4000	U
100-02-7	4-Nitrophenol	4000	U
132-84-9	Dibenzofuran	820	U
121-14-2	2,4-Dinitrotoluene	820	U
94-26-2	Diethylphthalate	820	U
7005-72-3	4-Chlorophenyl-phenylether	820	U
86-73-7	Fluorene	820	U
100-01-6	4-Nitroaniline	4000	U
534-52-1	4,6-Dinitro-3-Methylphenol	4000	U
86-70-5	N-Nitrosodiphenylamine (1)	820	U
101-55-3	4-Bromophenyl-phenylether	820	U
118-74-1	Hexachlorobenzene	820	U
87-26-5	Pentachlorophenol	4000	U
85-01-8	Phenanthrene	820	U
120-12-7	Anthracene	820	U
84-74-2	Di-n-Butylphthalate	820	U
206-44-0	Fluoranthene	820	U
129-00-0	Pyrene	820	U
85-23-7	Butylbenzylphthalate	820	U
91-24-1	3,3'-Dichlorodiphenylamine	1600	U
56-55-1	Benzo(a)Anthracene	820	U
218-01-9	Chrysene	820	U
117-91-7	bis(2-Ethylhexyl)Phthalate	820	U
117-84-0	Di-n-Octyl Phthalate	820	U
205-79-2	Benzo(b)Fluoranthene	820	U
207-08-9	Benzo(k)Fluoranthene	820	U
50-32-6	Benzo(a)Pyrene	820	U
193-19-5	Indeno(1,2,3-cd)Pyrene	820	U
53-70-7	Dibenz(a,h)Anthracene	820	U
191-24-3	Benzo(g,h,i)Perylene	820	U

() - Cannot be separated from Diphenylamine

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SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

SPR SAMPLE NO.

4040

Name: EWING, J. L. Contract: WEL-1011

Code: ENOP Case No.: 14772 SAS No.: WEL10 SDG No.: 4040

IN: 100% Water WATER Lab Sample ID: WEL10

g/L wt. %: 100 (g/mL) ML Lab File ID: WEL10

1: 100% med LOW Date Received: 08/07/80

Disturb: not dec. dec. Date Extracted: 08/07/80

Reaction: (Sep/F/Cont/Sond) CONT Date Analyzed: 09/01/80

Cleanup: Y/N N pH: 7.5 Dilution Factor: 1.00

CAS NO. COMPOUND CONCENTRATION UNITS:
μg/L or μg/Kg or %SAL

105-65-2	Phenol	10	U
111-64-4	bis(2-Chloroethoxy) Ether	30	U
95-57-8	2-Chlorophenol	30	U
541-73-1	1,3-Dichlorobenzene	30	U
106-46-7	1,4-Dichlorobenzene	30	U
100-51-6	Benzyl Alcohol	30	U
95-50-1	1,2-Dichlorobenzene	30	U
95-48-7	2-Methylanisole	30	U
108-20-1	bis(2-Chloroisopropyl) Ether	30	U
106-44-5	4-Methylanisole	30	U
621-64-7	N-Nitroso-Di-n-Propylamine	30	U
67-72-1	Hexachloroethane	30	U
98-95-3	Nitrobenzene	30	U
78-59-1	Isocaproic Acid	30	U
88-75-5	2-Nitrophenol	30	U
105-67-2	2,4-Dimethylanisole	30	U
85-55-0	Benzoic Acid	30	U
111-31-1	bis(2-Chloroethoxy) Methane	30	U
120-87-1	2,4-Dichlorophenol	30	U
120-92-1	1,2,4-Trichlorobenzene	30	U
91-20-3	Naphthalene	30	U
106-47-8	4-Chloroaniline	30	U
57-86-7	Hexachlorobutadiene	30	U
59-50-7	4-Chloro-3-Methylanisole	30	U
91-57-5	2-Methylnaphthalene	30	U
77-47-4	Hexachlorocyclopentadiene	30	U
95-48-2	1,4,5-Trichlorophenol	30	U
95-45-4	1,4,5-Trichlorophenol	30	U
91-48-7	1-Chloronaphthalene	30	U
88-74-4	3-Nitroaniline	30	U
131-11-7	Dimethyl Phthalate	30	U
206-74-2	Acenaphthylene	30	U
506-20-2	2,6-Dinitrotoluene	30	U

Name: WATER Contract: 551401 Date: 4/11

Code: ENDU Case No.: 14772 SAS No.: 55140 SDG No.: 1

RIX: 100% WATER WATER Lab Sample ID: 155010

File No.: 100 g/mL: ML Lab File ID: 15041

al: low med LOW Date Received: 10/17/80

ixture: not dec. dec. Date Extracted: 10/17/80

raction: Geof Cont/Sond CONT Date Analyzed: 10/17/80

Cleanup: Y/N N pH: 7.5 Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/g or ug/gal)

CAS NO.	COMPOUND		
55-13-1	3-Nitroaniline	170	U
83-10-2	Acenaphthene	170	U
51-10-5	2,4-Dinitrophenol	170	U
100-02-7	4-Nitrophenol	170	U
132-24-4	Dibenzofuran	170	U
121-14-1	2,4-Dinitrotoluene	170	U
84-62-2	Diethylphthalate	170	U
7005-72-3	4-Chlorodiphenylmethylether	170	U
85-73-7	Fluorene	170	U
100-01-6	4-Nitroaniline	170	U
534-52-1	4,6-Dinitro-2-Methylphenol	170	U
86-10-5	N-Nitrosodiphenylamine	170	U
101-55-7	4-Bromodiphenylmethylether	170	U
118-74-1	Hexachlorobenzene	170	U
87-32-5	Pentachlorophenol	170	U
85-01-3	Phenanthrene	170	U
120-12-7	Anthracene	170	U
84-74-2	Di-n-Butylphthalate	170	U
206-44-0	Fluoranthene	170	U
129-00-0	Pyrene	170	U
85-68-7	Butylbenzylphthalate	170	U
91-34-1	3,3'-Dichlorodiphenylamine	170	U
55-13-1	3-Nitroaniline	170	U
016-01-5	Chrysene	170	U
117-81-7	1,2-Ethynylphenylphthalate	170	U
117-84-0	1,2-Ethynylphenylphthalate	170	U
205-19-1	Benzo(a)fluoranthene	170	U
127-08-4	Benzo(a)fluoranthene	170	U
50-72-5	Benzo(a)pyrene	170	U
193-19-5	Indeno(1,2,3-cd)pyrene	170	U
53-70-3	Dibenz(a,h)anthracene	170	U
191-14-1	Benzo(g,h,i)perylene	170	U

- Cannot be separated from diphenylamine

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SP4 SAMPLE NO.

HR048

name: ENVL-TILLER Contract: TS11-010

code: ENOP Case No.: 14772 SAS No.: TS110 BDG No.: HR027

matrix: (soil/water) SOIL Lab Sample ID: TS5514

wt/vol: 30.0 (g/mL) 3 Lab File ID: FA070

flow/med: LOW Date Received: 08/07/90

status: not dec. NO dec. NO Date Extracted: 08/08/90

station: (Soil/Cont/Soil) SDNC Date Analyzed: 09/09/90

cleanup: (Y/N) Y pH: 3.5 Dilution Factor: 1.0

CONCENTRATION UNITS:

(ug/L or ug/kg) ug/kg

NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1	UNKNOWN COMPOUND	7.37	4800	3
2	UNKNOWN COMPOUND	15.94	420	3

IF
VOLATILE ORGANICS ANALYSIS DATA SHEET
REPRESENTS IDENTIFIED CONCENTRATIONS

194 SAMPLE 10.

INSTRUMENT: GC-MS CONTRACT: 22114000
 DATE: 1981 CASE NO.: 14771 SAS NO.: 22110 JOB NO.: 1-107
 ANALYST: WATER LAB SAMPLE ID: 22110
 METHOD: 100 g/mL: 10 LAB FILE ID: 22110
 VOLUME: LOW Date Received: 1981-10
 DATE: not rec. dec. 1981 Date Extracted: 1981-10
 ANALYST: Rep/Cont. Bond CONT Date Analyzed: 1981-10
 CLEANUP: AND 1 CH: 105 Dilution Factor: 1000

CONCENTRATION UNITS:
 (mg/L or ug/g or ug/L)

100% 100
 NUMBER COMPOUND NAME RT EST. CONC.
 =====
 =====

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

LAB SAMPLE NO.

→ 001

Name: SW-TOLEA Contract: SE110010

Code: SW01 Case No.: 14770 SAS No.: SE110 SDG No.: 44007

Matrix: soil/water SOIL Lab Sample ID: SE010

Concentration: 10.0 (ug/mL) g Lab File ID: 66071

Flow/med: LOW Date Received: 08/07/90

Stature: not dec. 20 dec. Date Extracted: 08/08/90

Condition: SepR/Cont/Sonc SONC Date Analyzed: 09/00/90

Cleanup: Y/N Y pH: 5.0 Dilution Factor: 1.0

SAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/kg) ug/L 0

105-95-1	Phenol	920	U
111-44-4	bis(2-Chloroethyl) Ether	920	U
95-57-3	2-Chlorophenol	920	U
541-77-1	1,3-Dichlorobenzene	920	U
106-46-7	1,4-Dichlorobenzene	920	U
100-51-3	Benzyl Alcohol	920	U
95-50-1	1,2-Dichlorobenzene	920	U
95-48-7	2-Methylphenol	920	U
108-50-1	bis(2-Chloroisopropyl) Ether	920	U
106-44-3	4-Methylphenol	920	U
621-54-7	N-Nitroso-Di-n-Propylamine	920	U
57-72-1	Hexachlorocycthane	920	U
98-95-7	Nitrobenzene	920	U
78-58-1	Isophorone	920	U
88-75-5	2-Nitrophenol	920	U
105-67-5	2,4-Dimethylphenol	920	U
65-85-0	Benzic Acid	4000	U
111-91-1	bis(2-Chloroethoxy) Methane	920	U
120-81-1	2,4-Dichlorophenol	920	U
120-80-1	1,2,4-Trichlorobenzene	920	U
91-20-7	Naphthalene	920	U
105-47-5	4-Chloroaniline	920	U
87-55-7	Hexachlorobutadiene	920	U
59-70-7	4-Chloro-3-Methylphenol	920	U
91-07-1	2-Methylnaphthalene	920	U
77-47-4	Hexachlorocyclopentadiene	920	U
83-46-1	2,4,6-Trichlorophenol	920	U
95-49-1	2,4,5-Trichlorophenol	4000	U
91-58-7	3-Chloronaphthalene	920	U
85-73-4	3-Nitroaniline	4000	U
121-11-3	Dimethyl Phthalate	920	U
128-61-8	Acenaphthylene	920	U
505-20-2	3,6-Dinitrotoluene	920	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ANALYST: PAUL-TULSA Contract: 5514H01 4050
 Order: 8908 Case No.: 14775 SAS No.: 5514 SDB No.: 44117
 Matrix: Soil/Water SOIL Lab Sample ID: 15514
 Vol.: 20.0 g/mL 3 Lab File ID: 15501
 Flow/med: LOW Date Received: 08/27/90
 Cure: not dec. 30 sec. Date Extracted: 08/28/90
 Partition: (Soil/Fat/Cont/Sorb) SDNO Date Analyzed: 09/09/90
 Cleanup: (Y/N) Y CH: 5.6 Dilution Factor: 1

CAS NO. COMPOUND CONCENTRATION UNITS:
 (ug/L or ug/kg) 5.6 3

99-09-1	2-Nitroaniline	4000	U
83-32-9	Acenaphthene	320	U
51-35-5	2,4-Dinitrophenol	4000	U
100-01-7	4-Nitrophenol	4000	U
132-64-9	Dibenzofuran	320	U
121-14-2	2,4-Dinitrotoluene	320	U
55-66-2	Diethylnthalate	320	U
105-72-3	4-Chlorophenyl-phenylether	320	U
86-73-7	Fluorene	320	U
100-01-6	4-Nitroaniline	4000	U
534-52-1	4,6-Dinitro-2-Methylnphenol	4000	U
86-70-6	N-Nitrosodiphenylamine (1)	320	U
101-55-3	4-Bromophenyl-phenylether	320	U
119-74-1	Hexachlorobenzene	320	U
97-86-5	Pentachlorophenol	4000	U
85-01-3	Phenanthrene	320	U
120-12-7	Anthracene	320	U
64-74-2	Di-n-Butylththalate	320	U
206-41-0	Fluoranthene	320	U
129-00-0	Pyrene	320	U
85-68-7	Butylbenzylththalate	320	U
91-94-1	1,3-Dichlorobenzidine	1600	U
54-35-3	Benzo(a)Anthracene	320	U
118-01-6	Chrysene	320	U
117-81-7	Bis(2-Ethylhexyl) Phthalate	32	U
117-84-0	Dio-n-Octyl Phthalate	320	U
126-69-3	Benzo(b)Fluoranthene	320	U
127-06-9	Benzo(k)Fluoranthene	320	U
50-31-5	Benzo(a)Pyrene	320	U
197-76-5	Indeno(1,2,3-cd)Pyrene	320	U
52-70-7	Dibenz(a,h)Anthracene	320	U
191-24-2	Benzo(g,h,i)Perylene	320	U

1 Cannot be separated from Diphenylamine

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051

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

EPA FORM 160

Name: SWL-00000 Contract: SE110012
 Code: SW01 Case No.: 14771 CAS No.: SE110 SDG No.: SW01
 Matrix: soil water SOIL Lab Sample ID: 115515
 Method: 10.0 g/mL 5 Lab File ID: SW01
 Flow/med: LOW Date Received: 8-27-87
 Disturb: not dec. DO dec. dec. Date Extracted: 8-28-87
 Action: (SepF/Cont/Sond) SONC Date Analyzed: 10/20/87
 Cleanup: Y/N Y pH: 5.8 Dilution Factor: 1

CONCENTRATION UNITS:

ug/L or ug/g SONC

per TICs found: ---

AS NUMBER	COMPOUND NAME	RT	EST. CONC.
	UNKNOWN COMPOUND	15.87	150

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SEMIQUANTITATIVE ORGANICS ANALYSIS DATA SHEET

IR- SAMPLE 0.

me: UL-7003A Contract: EE11010 1051
 re: Soil Case No.: 14770 SAS No.: EE110 IDG No.: 44007
 : Soil Water: WATER Lab Sample ID: EE517
 : Water: 1000 ug/mL Lab File ID: EE040
 : Flow/med: LOW Date Received: 08/27/90
 : ture: not rec. sec. Date Extracted: 12/30/90
 : ion: SepR/Cont/Sond: CONT Date Analyzed: 09/01/90
 : anup: 1 PH: 7.3 Dilution Factor: 1.0

SAS NO. COMPOUND CONCENTRATION UNITS:
 (ug/L or ug/kg) UG/L 0

100-95-1	Phenol	10	U
111-44-4	bis(2-Chloroethoxy) Ether	10	U
95-57-3	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Phenyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
109-50-1	bis(2-Chloroisopropoxy) Ether	10	U
106-44-3	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-73-1	Hexachloroethane	10	U
98-95-7	Nitrobenzene	10	U
75-59-1	Isophorone	10	U
99-79-3	3-Nitrophenol	10	U
105-67-4	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy) Methane	10	U
120-87-3	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-2	4-Chloroaniline	10	U
27-35-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-07-9	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
93-84-3	2,4,6-Trichlorophenol	10	U
99-89-4	2,4,5-Trichlorophenol	50	U
91-08-1	3-Chloronaphthalene	10	U
88-73-3	2-Nitroaniline	50	U
131-11-0	Dimethyl Phthalate	10	U
208-95-5	4-Cyanophenol	10	U
100-50-1	2,6-Dinitrotoluene	10	U

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 SEMI-QUANTILE ORGANIC ANALYSIS DATA SHEET

SP# SAMPLE ID

NAME: EMUL-TULEA Contract: 5511H010 1-88.
 SNO: Case No.: 14771 SAS No.: 55110 SDG No.: 44027
 SOL: Water/WATER Lab Sample ID: 755117
 Wt. (g): 1000 (mg/mL) mg Lab File ID: 54043
 (low/med) LOW Date Received: 03/07/90
 re: not dec. dec. Date Extracted: 03/30/90
 ch: Geop/Cont/Sond CONT Date Analyzed: 09/01/90
 nuc: 77N/0 pH: 7.7 Dilution Factor: 1.0

CONCENTRATION UNITS:

AS NO. COMPOUND (ug/L or ug/Kg) ug/L

00-00-0	3-Nitroaniline	50	U
00-01-0	Acenaphthene	10	U
00-02-0	2,4-Dinitrophenol	50	U
00-02-7	4-Nitrophenol	50	U
00-04-0	Dibenzofuran	10	U
01-14-2	2,4-Dinitrotoluene	10	U
4-00-0	Diethyolphthalate	10	U
005-02-3	4-Chlorophenyl-phenylether	10	U
6-03-7	Fluorene	10	U
00-01-0	4-Nitroaniline	50	U
04-02-1	4,6-Dinitro-2-Methylphenol	50	U
0-00-0	4-Nitrosodiphenylamine (1)	10	U
01-02-7	4-Bromophenyl-phenylether	10	U
16-04-1	Hexachlorobenzene	10	U
07-00-0	Pentachlorophenol	50	U
5-01-0	Phenanthrene	10	U
00-02-7	Anthracene	10	U
04-04-0	Di-n-Butylphthalate	10	U
00-04-0	Fluoranthene	10	U
00-00-0	Pyrene	10	U
05-00-7	Butylbenzylphthalate	10	U
01-04-1	7,8-Dichlorodibenzodioxine	10	U
00-00-0	Benzo(a)Anthracene	10	U
018-01-0	Chrysene	10	U
017-01-0	bis(2-Ethylhexyl)Phthalate	13	U
017-04-0	bis(2-Octyl)Phthalate	10	U
005-00-0	Benzo(b)Fluoranthene	10	U
007-00-0	Benzo(k)Fluoranthene	10	U
00-02-0	Benzo(a)Pyrene	10	U
007-00-0	Indeno(1,2,3-cd)Pyrene	10	U
00-00-0	Dibenz(a,h)Anthracene	10	U
001-00-0	Benzo(g,h,i)Perylene	10	U

- Cannot be separated from Diphenylamine

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SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

AMP: SMU-TULSA Contract: 5511011 HUS
 CODE: SMOY Case No.: 14775 SAS No.: 55110 SDG No.: 4007
 M: soil/water WATER Lab Sample ID: 13521
 A: 10000 g/mL ML Lab File ID: 60001
 I: 100/med LOW Date Received: 8/27/80
 STORE: not sec. dec. Date Extracted: 12/10/80
 ACTION: (See R/Cont/Sonc) CONT Date Analyzed: 12/31/80
 CLEANUP: (Y/N) N pH: 7.2 Dilution Factor: 1.0

CONCENTRATION UNITS:
 µg/L or µg/kg µg/L

NO. OF COMPOUNDS FOUND: 2

3 NUMBER	COMPOUND NAME	RT	SET. CONC.	Q
	UNKNOWN COMPOUND	4.67	7.013	
57107	Hexadecanoic acid (901)	18.40	4.013	

18 SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA FORM 816-1

4-81-02

Name: SWL-TRUSA Contract: 75114010
 Code: ENOP Case No.: 11770 SAS No.: 75110 SDG No.: 71127
 Media: soil/water WATER Lab Sample ID: 7557-5
 Sample ID: 1000 ug/mL ML Lab File ID: 75001
 Ali: (low/med) LOW Date Received: 08/27/90
 Disturbance: not dec. dec. Date Extracted: 08/30/90
 Fraction: (SepF/Cont/Spnd) CONT Date Analyzed: 09/20/90
 Cleanup: (Y/N) N pH: 7.3 Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/kg) ug/L

CAS NO. COMPOUND

108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl) Ether	10	U
95-57-3	2-Chlorophenol	10	U
241-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-90-1	bis(2-Chloroisopropyl) Ether	10	U
106-44-3	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
95-55-3	Nitrobenzene	10	U
78-59-1	Isoclorone	10	U
95-75-6	2-Nitrophenol	10	U
105-67-8	2,4-Dimethylphenol	50	U
65-85-0	Benzoic Acid	10	U
111-91-1	bis(2-Chloroethoxy) Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
97-25-3	Hexachlorobutadiene	10	U
95-50-7	4-Chloro-3-Methylphenol	10	U
91-57-1	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
95-06-1	2,4,6-Trichlorophenol	50	U
95-55-4	2,4,5-Trichlorophenol	10	U
91-58-7	2-Chloronaphthalene	50	U
95-74-4	2-Nitroaniline	10	U
131-11-7	Dimethyl Phthalate	10	U
208-91-3	Acenaphthylene	10	U
906-20-2	2,6-Dinitrotoluene	10	U

RECEIVED

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FORM 1 8V-1

OCT - 1 1990

1-87 Rev.

Quality Assurance Mgmt. Section

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

SP4 SAMPLE NO.

Line: BWL-TULSA Contract: 55110010 Date: 4/1/87
 Side: SWOF Case No.: 14772 SAS No.: 55110 SDG No.: 55007
 Fluid: (soil/water) WATER Lab Sample ID: 755018
 Std vol/wt: 1000 g/mL / mL Lab File ID: 8907A
 el: (low/med) LOW Date Received: 08/07/80
 Disture: not dec. dec. Date Extracted: 08/09/80
 Fraction: (SepF/Cont/Sand) CONT Date Analyzed: 09/20/80
 Cleanups: (Y/N) N pH: 7.2 Dilution Factor: 1.0

CONCENTRATION UNITS:

SAS NO.	COMPOUND	ug/mL or ug/g (ug/g)	U
01-09-5	2-Nitroaniline	50	U
03-10-9	acenaphthene	10	U
01-25-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
102-04-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-00-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
97-36-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
94-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-08-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
018-01-9	Chrysene	10	U
117-91-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
108-99-3	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-72-2	Benzo(a)Pyrene	10	U
193-79-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-7	Dibenzo(a,h)Anthracene	10	U
191-14-2	Benzo(g,h,i)Perylene	10	U

1 - Cannot be separated from Diphenylamine

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SEMIQUANTITATIVE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

LAB. SAMPLE NO. _____

NAME: PHL-70189 Contract: SE11101

JOB: ENOB Case No.: 14772 SAS No.: SE1110 SDS No.: 25107

1. SOLVENT: WATER Lab Sample ID: SE1110

2. Wt/Vol: 1000 g/mL: ML Lab File ID: SE1110

3. Flow/med: LOW Date Received: 10/27/80

4. Picture: not dec. _____ dec. _____ Date Extracted: 10/27/80

5. Reaction: (SepF/Cont/Sonc) CONT Date Analyzed: 10/27/80

6. Cleanup: (Y/N) N pH: 7.5 Dilution Factor: 1

CONCENTRATION UNITS:

ug/L or ug/g or %

for TICs found: 7

AS NUMBER	COMPOUND NAME	RT	EST. CONC.
1. 14724	Phenol, 2,4-bis(1,1-dimethyl)	14.15	7.0180
2.	UNKNOWN COMPOUND	15.09	2.010
3. 37103	Hexadecanoic acid (PCI)	18.40	2.010

SEMIVOLATILE ORGANIC ANALYSIS DATA SHEET

SP# SAMPLE NO.

Name: EWL-TULSA Contract: 93114010 HAZAR
 Code: EWCH Case No.: 14770 SAS No.: 93110 SDG No.: 14770
 Matrix: (Soil/Water) SOIL Lab Sample ID: 735718
 Size Wt/Vol: 10.0 g/mL 3 Lab File ID: 90600
 Site: (Flow/med) LOW Date Received: 08/07/90
 Moisture: not dec. 13 dec. Date Extracted: 09/22/90
 Fraction: (GepF/Cont/Sond) EDNC Date Analyzed: 10/20/90
 Cleanup: (Y/N) / pH: 5.5 Dilution Factor: 1.0

CAS NO. COMPOUND CONCENTRATION UNITS:
 (ug/L or ug/kg) ug/kg

108-95-2	Phenol	760	U
111-44-4	bis(2-Chloroethyl) Ether	760	U
95-57-3	2-Chlorophenol	760	U
541-75-1	1,3-Dichlorobenzene	760	U
106-46-7	1,4-Dichlorobenzene	760	U
100-51-6	Benzyl Alcohol	760	U
95-50-1	1,2-Dichlorobenzene	760	U
95-48-7	2-Methylphenol	760	U
108-60-1	bis(2-Chloroisopropyl) Ether	760	U
106-44-5	4-Methylphenol	760	U
621-64-7	N-Nitroso-Di-n-Propylamine	760	U
67-72-1	Hexachlorobutane	760	U
98-95-3	Nitrobenzene	760	U
78-59-1	Isoclorone	760	U
88-75-5	2-Nitrophenol	760	U
105-67-9	3,4-Dimethylphenol	760	U
65-83-0	Benzoic Acid	3700	U
111-91-1	bis(2-Chloroethyl) Methane	760	U
120-92-2	2,4-Dichlorophenol	760	U
120-82-1	1,2,4-Trichlorobenzene	760	U
91-20-7	Naphthalene	760	U
106-47-8	4-Chloroaniline	760	U
87-68-7	Hexachlorobutadiene	760	U
59-50-7	4-Chloro-3-Methylphenol	760	U
91-67-5	2-Methylnaphthalene	760	U
77-47-4	Hexachlorocyclopentadiene	760	U
89-06-2	2,4,6-Trichlorophenol	760	U
95-65-4	2,4,5-Trichlorophenol	3700	U
91-58-7	2-Chloronaphthalene	760	U
88-74-4	2-Nitroaniline	3700	U
131-11-7	Dimethyl Phthalate	760	U
208-96-5	4-cenaanthylene	760	U
606-20-2	2,6-Dinitrotoluene	760	U

ENVIRONMENTAL PROTECTION AGENCY USE ONLY (SEE INSTRUCTIONS)

Lab Name: ENVIRONMENTAL PROTECTION AGENCY Laboratory: WATKINSVILLE

Lab Code: 600 Case No.: 6000 Lab No.: 6000 Date: 10/10/77

Matrix: Water SOIL Lab Sample ID: W0001

Sample Description: SOIL Sample ID: 6000 Lab File ID: 6000

Level: Uncontaminated LOW Date Received: 8/17/77

Moisture: Not dec. 31 dec. Date Extracted: 8/20/77

Extraction: Soxhlet/Cont/Bond SONO Date Analyzed: 8/22/77

GC Cleanup: Y(N) Y OM: 2.1 Dilution Factor: 1

Lab No. Compound Concentration (mg/L) Units

106-88-1	Aroclor	340	U
111-44-4	bis(2-Chloroethoxy) Methane	340	U
95-57-3	3-Chlorobenzene	340	U
341-77-1	1,3-Dichlorobenzene	340	U
105-46-7	1,4-Dichlorobenzene	340	U
100-51-3	Benzyl Alcohol	340	U
95-50-1	1,2-Dichlorobenzene	340	U
95-48-7	3-Methylaniline	340	U
106-80-1	bis(2-Chloroisopropoxy) Ether	340	U
106-44-5	4-Methylaniline	340	U
62-11-7	4-Nitro-2,6-Di-n-Propylaniline	340	U
97-12-1	Hexachlorobenzene	340	U
98-08-1	Nitrobenzene	340	U
78-12-1	Isonitrobenzene	340	U
93-73-3	2-Nitroaniline	340	U
105-57-7	2,4-Dimethylaniline	340	U
88-08-0	Benzene	340	U
111-91-1	bis(1-Chloroethoxy) Methane	340	U
120-91-1	2,4-Dichlorobenzene	340	U
120-90-1	1,2,4-Trichlorobenzene	340	U
91-20-7	Naphthalene	340	U
106-44-5	4-Chloroaniline	340	U
97-55-1	Hexachlorocyclopentadiene	340	U
95-50-1	4-Chloro-3-Methylaniline	340	U
91-57-3	2-Methylnaphthalene	340	U
91-57-3	Hexachlorocyclopentadiene	340	U
93-73-3	2,4,6-Trichlorobenzene	340	U
91-57-3	2,4,6-Trichlorobenzene	340	U
91-57-3	2-Chloronaphthalene	340	U
93-73-3	2-Nitroaniline	340	U
111-91-1	Dimethyl Phthalate	340	U
91-57-3	Hexachlorocyclopentadiene	340	U
90-20-1	2,6-Dinitroaniline	340	U

[illegible][illegible]

1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

NUMBER	COMPOUND NAME	RT	EST. CONC.
1	UNKNOWN COMPOUND	11.74	400
2	UNKNOWN COMPOUND	16.00	1000
3	HEPTADECANOIC ACID (PC1)	18.42	250
4	UNKNOWN COMPOUND	21.39	340
5	UNKNOWN HYDROCARBON	22.84	420
6	UNKNOWN HYDROCARBON	23.27	1100
7	UNKNOWN COMPOUND	24.73	340
8	UNKNOWN HYDROCARBON	25.77	280
9	UNKNOWN COMPOUND	26.11	280
10	UNKNOWN COMPOUND	26.56	280
11	UNKNOWN HYDROCARBON	27.01	340
12	UNKNOWN COMPOUND	27.42	280
13	UNKNOWN COMPOUND	28.47	1000
14	UNKNOWN COMPOUND	31.84	1000

ENVIRONMENTAL SERVICES ANALYSIS DATA SHEET

SPC SAMPLE NO.

Name: ENVIRONMENTAL SERVICES Contract: 551-1401
 Code: 500 Case No.: 4477 SAE No.: 55112 SDC No.: 11111
 Print: SOIL WATER SOIL Lab Sample ID: 155001
 1e wt. 0.1 10.0 g/mL: 5 Lab File ID: 155001
 -1: Flow/med LOW Date Received: 3/27/91
 Moisture: not dec. 5 dec. 5 Date Extracted: 3/28/91
 actions: GeoX Cont/GenX 5000 Date Analyzed: 3/28/91
 Cleaned: Y/N Y pH: 6.7 Dilution Factor: 1

CAS NO. COMPOUND CONCENTRATION (mg/L)
 (ug/L or ug/g or ug/mg)

108-95-1	Phenol	590	U
111-84-1	bis(2-Chloroethoxy) Ether	590	U
95-57-3	2-Chlorophenol	590	U
541-75-1	1,3-Dichlorobenzene	590	U
106-46-7	1,4-Dichlorobenzene	590	U
100-51-6	Benzyl Alcohol	590	U
95-50-1	1,2-Dichlorobenzene	590	U
95-49-7	2-Methylphenol	590	U
108-90-1	bis(2-Chloroisopropoxy) Ether	590	U
106-44-3	4-Methylphenol	590	U
621-64-7	N-Nitroso-Di-n-Propylamine	590	U
57-71-1	Hexachlorocycthane	590	U
99-08-7	Nitrobenzene	590	U
78-29-1	Isopropene	590	U
92-75-5	3-Nitrophenol	590	U
105-67-5	2,4-Dimethylphenol	590	U
63-25-0	Sulfuric Acid	1400	U
111-84-1	bis(2-Chloroethoxy) Methane	590	U
120-91-1	3,4-Dichlorophenol	590	U
120-91-1	1,2,4-Trichlorobenzene	590	U
91-20-2	Naphthalene	590	U
106-47-9	4-Chloroaniline	590	U
67-26-7	Hexachlorocyclopentadiene	590	U
59-50-7	4-Chloro-2-Methylphenol	590	U
91-57-3	2-Methylisobutylarene	590	U
77-47-4	Hexachlorocyclohexadiene	590	U
28-04-1	3,4,5-Trichlorophenol	1400	U
28-04-1	3,4,5-Trichlorophenol	590	U
91-57-3	2-Chloronaphthalene	1400	U
85-84-4	2-Nitroaniline	590	U
101-11-7	Dimethyl Phthalate	590	U
208-91-8	p-cyanotoluene	590	U
506-20-1	2,4-Dinitrophenol	590	U

name: WILSON, JR contract: WILSON
 code: 100 case no.: 1000 lab no.: 1000 lab no.: 1000
 site: 100 water: 100 lab sample no.: 1000
 site no./year: 100 year: 100 lab file no.: 100
 site: 100 (name): 100 Date Received: 1000
 nature: 100 sec. 100 Date Extracted: 1000
 section: 100 (name): 100 Date Analyzed: 1000
 cleaned: 100 (name): 100 pH: 100 Dilution Factor: 100

CASE NO.	COMPOUND	CONCENTRATION UNITS:	
		ug/L of water	ug/L
100-10-1	1-Nitrobenziline	1000	1
100-10-2	Acenaphthene	1000	1
100-10-3	1,4-Dinitrobenzene	1000	1
100-10-4	4-Nitrophenol	1000	1
100-10-5	Dibenzofuran	1000	1
100-10-6	1,4-Dinitrofluorene	1000	1
100-10-7	Diethylphthalate	1000	1
100-10-8	4-Chlorophenyl-phenylether	1000	1
100-10-9	Fluorene	1000	1
100-10-10	4-Nitrobenziline	1000	1
100-10-11	4,6-Dinitro-2-methylphenol	1000	1
100-10-12	N-Nitrosodiphenylamine	1000	1
100-10-13	4-Bromodiphenyl-phenylether	1000	1
100-10-14	Hexachlorobenzene	1000	1
100-10-15	Pentachlorobenzene	1000	1
100-10-16	Phenanthrene	1000	1
100-10-17	Anthracene	1000	1
100-10-18	Di-n-Butylphthalate	1000	1
100-10-19	Fluoranthene	1000	1
100-10-20	Pyrene	1000	1
100-10-21	Butylbenzylphthalate	1000	1
100-10-22	3,3'-Dichlorobenzidine	1000	1
100-10-23	Benzo(a)anthracene	1000	1
100-10-24	Chrysene	1000	1
100-10-25	Di(2-Ethylhexyl) Phthalate	1000	1
100-10-26	Di-n-Octyl Phthalate	1000	1
100-10-27	Benzo(b)fluoranthene	1000	1
100-10-28	Benzo(k)fluoranthene	1000	1
100-10-29	Benzo(a)Pyrene	1000	1
100-10-30	Indeno(1,2,3-cd)Pyrene	1000	1
100-10-31	Dibenz(a,h)anthracene	1000	1
100-10-32	Benzo(g,h,i)perylene	1000	1

1 - Cannot be separated from Diphenylamine

IDENTIFICATION SERVICE ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

REF. SAMPLE NO.

DATE

Lab. SW-7115A Contract: 88100
 Case No.: 10770 SAG No.: 88100 Job No.: 10770
 Sample Name: Water Lab Sample ID: 10770
 Lot No.: 10770 Lab File ID: 10770
 Flow/Rate: LOW Date Received: 10/17/88
 Nature: Not Recd. 5 dec. Date Extracted: 10/27/88
 tion: Sepp/Cont. Sops BOND Date Analyzed: 10/27/88
 Cleanup: 10/27/88 pH: 8.7 Dilution Factor:

CONCENTRATION: 1000
 Unit: mg/kg

Notes:

NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1	UNKNOWN COMPOUND	10.0	1000	1000

054

10/27/88

102

name: BWL-71134 Laboratory: 7511-011
 code: 8003 Case No.: 84772 SRS No.: 7511 SRS No. 102
 Lab Name: 7511
 Lab File No.: 102
 Date Received: 8-1-80
 Date Extracted: 8-29-80
 Date Analyzed: 8-21-80
 Cleanup: (Y/N) Y pH: 7.8 Dilution Factor: 1

CAS NO. COMPOUND CONCENTRATION UNITS:
 ug/L or ug/g 10.0

108-95-1	Phenol	770	U
111-44-1	bis(2-Chloroethoxy) Ether	770	U
95-57-5	1-Chlorobenzene	770	U
541-77-1	1,3-Dichlorobenzene	770	U
106-46-7	1,4-Dichlorobenzene	770	U
100-51-5	Benzyl Alcohol	770	U
95-50-1	1,2-Dichlorobenzene	770	U
95-48-7	3-Methylphenol	770	U
108-60-1	bis(2-Chloroisopropyl) Ether	770	U
106-44-5	4-Methylphenol	770	U
621-64-7	N-Nitroso-Di-n-Propylamine	770	U
67-72-1	Hexachloroethane	770	U
98-95-1	Nitrobenzene	770	U
78-59-1	Isobutylene	770	U
98-73-5	2-Nitrophenol	770	U
105-67-2	1,4-Dimethylbenzene	770	U
65-85-0	Benzoic Acid	770	U
111-91-1	bis(2-Chloroethoxy) Methane	770	U
120-83-2	1,4-Dichlorophenol	770	U
120-82-1	1,2,4-Trichlorobenzene	770	U
91-20-3	Naphthalene	770	U
106-47-3	4-Chloroaniline	770	U
37-58-3	Hexachlorobutadiene	770	U
59-20-7	4-Chloro-3-Methylphenol	770	U
91-57-4	2-Methylnaphthalene	770	U
77-47-4	Hexachlorocyclopentadiene	770	U
38-05-1	1,4,6-Trichlorophenol	770	U
35-45-0	1,4,5-Trichlorophenol	770	U
91-58-7	3-Chloronaphthalene	770	U
58-71-4	2-Nitroaniline	770	U
101-11-7	Dimethyl Phthalate	770	U
208-96-5	Hexaanthylene	770	U
506-20-1	2,6-Dinitrotoluene	770	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

13. SAMPLE

Name: EWL-TULEA Laboratory: 5511-401
 Code: EW01 Case No.: 11771 CAS No.: 5511 DOG: 11-1-82
 Location: soil/water SOIL Lab Sample ID: 15511
 Lab No. (1): 10 Lab No. (2): 5511
 Lab No. (3): LOW Date Received: 09/11/80
 Mixture: not dec. 11 dec. Date Extracted: 05/01/80
 Action: GeoP/Cont/Sonc. 30MC Date Analyzed: 09/01/80
 Cleanup: Y/N Y PH: 7.5 Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		MG/L or UG/L	PPM
99-09-2	1-Nitroaniline	770	U
83-32-3	Acenaphthene	770	U
51-29-5	1,4-Dinitrobenzene	770	U
100-02-7	4-Nitrophenol	7700	U
132-84-3	Dibenzofuran	770	U
121-14-1	2,4-Dinitrotoluene	770	U
94-88-3	Diethylthalate	770	U
7005-72-1	4-Chlorophenyl-phenylether	770	U
86-73-7	Fluorene	770	U
100-01-1	4-Nitroaniline	7700	U
534-52-1	4,6-Dinitro-2-methylphenol	770	U
86-30-8	N-Nitrosodiphenylamine (1)	770	U
101-35-1	4-Bromophenyl-phenylether	770	U
118-74-1	Hexachlorobenzene	770	U
37-34-5	Pentachlorophenol	770	U
85-01-2	Phenanthrene	770	U
120-12-7	Anthracene	770	U
84-74-1	Di-n-butylthalate	770	U
206-44-0	Fluoranthene	770	U
129-00-0	Pyrene	770	U
95-83-7	Butylbenzylthalate	770	U
91-94-1	3,3'-Dichlorodiphenyl	1500	U
56-55-7	Benzo(a)anthracene	770	U
218-01-1	Chrysene	770	U
117-81-7	Di(2-Ethylhexyl) Phthalate	770	U
117-84-6	Di-n-butyl Phthalate	770	U
205-99-1	Benzo(b)fluoranthene	770	U
207-08-1	Benzo(k)fluoranthene	770	U
50-32-1	Benzo(e)pyrene	770	U
197-75-5	Indeno(1,2,3-cd)pyrene	770	U
53-70-1	Dibenz(a,h)anthracene	770	U
191-24-1	Benzo(g,h,i)perylene	770	U

1) - Cannot be separated from diphenylamine

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SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

LAB. SAMPLE NO. _____

DATE: _____

TIME: PM 12:30 CONTRACT: 15100000

CODE: ENGL CASE NO.: 1177 LAB NO.: 1510 IDG NO.: 1177

ENV: soil/water SOIL LAB SAMPLE ID: 1510

NO. AT RPT: 100 GROSS WT: 1 LAB FILE ID: 1510

ENV: (flow/mtd) LOW DATE RECEIVED: 10/17/90

MIXTURE: not dec. 14 dec. _____ DATE EXTRACTED: 10/18/90

EXTRACTION: SepEx Cont. Bond. BOND DATE ANALYZED: 10/18/90

CLEANUP: (Y/N) Y CH: 15 DILUTION FACTOR: 1

CONCENTRATION UNITS:

MG/L OR MG/KG: 1510

NO. TICs FOUND: 2

WAS NUMBER	COMPOUND NAME	AT	EST. CONCL.	Q
1	UNKNOWN COMPOUND	1.53	1000	4
2	UNKNOWN COMPOUND	15.97	100	3

References

Name: PAUL - P. 10 Contract: 713-1001
 Code: 5001 Date Recd.: 1-27-71 Lab No.: 1001 Vial No.: 1001
 In: 1001 - Water 1001 Lab Sample ID: 1001
 Wt/lot: 100 g/mL: 1 Lab File ID: 1001
 In: 1001 - med 1001 Date Received: 1-27-71
 Disture: not dec. dec. Date Extracted: 1-27-71
 Action: Spec/Conty/Sonde 5001 Date Analyzed: 1-27-71
 Cleanup: 1/10 CM: 1.0 Dilution Factor: 1

CONCENTRATION UNIT: _____

CAS NO.	COMPOUND	WGT. IN GMS	WGT. IN GMS
108-41-1	Phenol	710	1
111-64-4	bis(1-Chloroethyl) Ether	710	1
95-57-3	1-Chlorobenzene	710	1
541-77-1	1,3-Dichlorobenzene	710	1
106-46-7	1,4-Dichlorobenzene	710	1
100-51-3	Benzyl Alcohol	710	1
95-50-1	1,2-Dichlorobenzene	710	1
95-48-7	3-Methylphenol	710	1
106-50-1	bis(2-Chloroisopropyl) Ether	710	1
106-44-3	4-Methylphenol	710	1
621-54-7	N-Nitroso-Di-n-Propylamine	710	1
67-72-1	Hexachlorocyclopentadiene	710	1
98-45-7	Nitrobenzene	710	1
73-59-1	Isochlorobenzene	710	1
88-72-5	2-Nitrophenol	710	1
105-57-5	2,4-Dimethylphenol	710	1
65-85-0	Benzic Acid	710	1
111-61-1	bis(2-Chloroethyl) Methane	710	1
120-83-0	2,4-Dichlorophenol	710	1
120-81-1	1,2,4-Trichlorobenzene	710	1
91-20-3	Naphthalene	710	1
105-47-2	4-Chloronitrobenzene	710	1
37-58-7	Hexachlorocyclopentadiene	710	1
59-50-7	4-Chloro-2-Methylphenol	710	1
91-57-3	3-Methylisobutylbenzene	710	1
77-47-4	Hexachlorocyclopentadiene	710	1
38-95-1	2,4,5-Trichlorophenol	710	1
95-55-4	1,4,5-Trichlorophenol	710	1
91-33-7	2-Chloronaphthalene	710	1
93-71-4	2-Nitronitrobenzene	710	1
131-91-7	Dimethyl Phthalate	710	1
208-96-5	Acenaphthylene	710	1
906-19-1	1,3-Dinitrobenzene	710	1

Name: SMU-10035 Contract: 55114011 4087

Job: SWWQ Case No.: 14773 SRA No.: 55117 Job No.: 4087

Media: Water SOIL Lab Sample ID: 155703

File No.: 11 Sample ID: 155703 Lab File ID: 155703

Unit: Flow/med LOW Date Received: 9/27/94

Mixture: not dec. dec. Date Extracted: 10/20/94

Extraction: BeoP Conc. Sonex SONC Date Analyzed: 9/21/94

Cleanup: 17/10 CM: 2.5 Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION (UNIT)	
		(ug/L or ug/kg) (ug/L)	
99-82-8	1-Hydrobenziline	710	U
83-72-8	Benazotrene	710	U
51-23-8	1,4-Dinitrobenzol	400	U
100-42-7	4-Nitrobenzol	7400	U
132-84-8	0-Benzofuran	710	U
121-14-2	2,4-Dinitrotoluene	710	U
94-60-2	0-Ethylphthalate	710	U
7005-72-7	4-Chlorobenzyl-benzyl ether	710	U
96-73-7	Fluorene	710	U
100-61-5	4-Nitroaniline	7400	U
534-52-1	4,6-Dinitro-1-methylbenzol	7400	U
84-39-5	4-Nitro-2-dimethylaminophenylamine (1)	710	U
101-55-2	4-Bromophenyl-benzyl ether	710	U
116-74-1	Hexachlorocyclopentadiene	710	U
97-85-2	2-Nitro-1-chlorobenzol	7400	U
95-01-5	Benazotrene	710	U
120-12-7	Anthracene	710	U
84-74-2	0-n-Butylphthalate	710	U
206-44-0	Fluoranthene	710	U
129-00-1	Pyrene	710	U
95-63-7	Butylbenzylphthalate	710	U
91-94-1	1,2-Dichlorobenzidine	7400	U
56-55-7	Benzo(a)Anthracene	710	U
218-01-5	Chrysene	710	U
117-81-7	1,2-Dichloro-4,5-Bis(4-chlorophenyl) Phthalate	710	U
117-84-1	0-n-Butyl Phthalate	710	U
205-99-1	Benzo(b)Fluoranthene	710	U
207-08-5	Benzo(k)Fluoranthene	710	U
50-32-8	Benzo(a)Pyrene	710	U
193-39-5	Indeno(1,2,3-cd)Pyrene	710	U
55-70-3	Dibenz(a,h)Anthracene	710	U
191-24-1	Benzo(g,h,i)Perylene	710	U

1) - Cannot be separated from 1-chlorobenzene

[illegible][illegible]

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840.

| PG NUMBER | COMPOUND NAME | RT | LET | LONG |
|-----------|------------------|-------|-----|------|
| 1 | UNKNOWN COMPOUND | 15.94 | 120 | 4.00 |

10
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CPA 34891

Name: SML-TULSA Contract: 5511-0310 PROJECT
Code: SWOK Case No.: 14772 SAS No.: 55110 SDG No.: HK02
Matrix: (soil/water) SOIL Lab Sample ID: 1557-06
Conc: 20.0 (ug/mL) 0 Lab File ID: _____
Flow: (low/med) LOW Date Received: 08/27/90
Storage: not dec. 0 dec. _____ Date Extracted: 08/29/90
Action: (SepF/Cont/Sonc) SONC Date Analyzed: 09/21/90
Cleanup: (Y/N) Y pH: 7.9 Dilution Factor: 1.00

CONCENTRATION UNITS:

(ug/L or ug/kg) UG/KG

CAS NO. COMPOUND 0

| | | | |
|------------|---------------------|-----|---|
| 319-84-6 | alpha-BHC | 18 | U |
| 319-85-7 | beta-BHC | 18 | U |
| 319-86-8 | delta-BHC | 18 | U |
| 58-89-9 | gamma-BHC (Lindane) | 18 | U |
| 76-44-5 | Heptachlor | 18 | U |
| 309-00-2 | Aldrin | 18 | U |
| 1024-57-3 | Heptachlor epoxide | 18 | U |
| 959-98-6 | Endosulfan I | 18 | U |
| 60-57-1 | Dieldrin | 35 | U |
| 72-55-9 | 4,4'-DDE | 35 | U |
| 72-20-8 | Endrin | 35 | U |
| 33213-65-9 | Endosulfan II | 35 | U |
| 72-54-8 | 4,4'-DDD | 35 | U |
| 1031-07-2 | Endosulfan sulfate | 15 | U |
| 50-29-3 | 4,4'-DDT | 75 | U |
| 72-43-5 | Methoxychlor | 180 | U |
| 53494-70-5 | Endrin ketone | 35 | U |
| 5103-71-9 | alpha-Chlordane | 180 | U |
| 5103-74-2 | gamma-Chlordane | 180 | U |
| 8001-35-2 | Toxaphene | 350 | U |
| 12674-11-2 | Aroclor-1015 | 180 | U |
| 11104-25-2 | Aroclor-1221 | 180 | U |
| 11141-16-5 | Aroclor-1232 | 180 | U |
| 53469-21-9 | Aroclor-1242 | 180 | U |
| 12672-19-5 | Aroclor-1248 | 180 | U |
| 11097-69-1 | Aroclor-1254 | 150 | U |
| 11096-82-5 | Aroclor-1260 | 350 | U |

10
PESTICIDE ORGANICS ANALYSIS DATA SHEET

19A SAMPLE NO.

Name: SWL-TULSA Contract: 5511HQ10 REPORT
Code: SWOP Case No.: 14772 GAS No.: 5511Q SDG No.: 4P037
Matrix: soil/water WATER Lab Sample ID: 555-03
Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____
Concentration: (low/mid) LOW Date Received: 08/27/90
Preservation: not dec. dec. Date Extracted: 08/30/90
Extraction: (SepF/Cont/Song) SEPF Date Analyzed: 09/07/90
Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L g

| | | |
|------------|---------------------|---------|
| 319-84-6 | alpha-BHC | 0.0501U |
| 319-85-7 | beta-BHC | 0.0501U |
| 319-86-8 | delta-BHC | 0.0501U |
| 58-89-9 | gamma-BHC (Lindane) | 0.0501U |
| 76-44-8 | Heptachlor | 0.151 |
| 309-00-2 | Aldrin | 0.0501U |
| 1024-57-3 | Heptachlor epoxide | 0.0501U |
| 59-98-8 | Endosulfan I | 0.0501U |
| 60-57-1 | Dieldrin | 0.101U |
| 72-55-9 | 4,4'-DDE | 0.101U |
| 72-20-8 | Endrin | 0.101U |
| 33213-65-9 | Endosulfan II | 0.101U |
| 72-54-8 | 4,4'-DDD | 0.101U |
| 1031-07-8 | Endosulfan sulfate | 0.101U |
| 50-29-3 | 4,4'-DDT | 0.101U |
| 72-43-5 | Methoxychlor | 0.501U |
| 53494-70-5 | Endrin ketone | 0.101U |
| 5103-71-9 | alpha-Chlordane | 0.501U |
| 5103-74-2 | gamma-Chlordane | 0.501U |
| 8001-35-2 | Toxaphene | 1.01U |
| 12674-11-2 | Aroclor-1016 | 0.501U |
| 11104-28-2 | Aroclor-1221 | 0.501U |
| 11141-16-5 | Aroclor-1232 | 0.501U |
| 53469-21-9 | Aroclor-1242 | 0.501U |
| 12672-29-6 | Aroclor-1248 | 0.501U |
| 11097-69-1 | Aroclor-1254 | 1.01U |
| 11098-82-5 | Aroclor-1260 | 1.01U |

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10
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Name: BWL-TULSA Contract: 5511HQ10 HRO38
Code: EWOK Case No.: 14772 SAS No.: 5511Q SDG No.: HF027
Matrix: (soil/water) WATER Lab Sample ID: 357-09
Sample wt/vol: 400.0 (g/mL) ML Lab File ID: _____
Sol: (low/med) LOW Date Received: 08/27/90
Moisture: not dec. _____ dec. _____ Date Extracted: 08/30/90
Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/07/90
Cleanup: (Y/N) N pH: 7.1 Dilution Factor: 1.00

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/kg) UG/L 0

| | | |
|------------|---------------------|--------|
| 319-84-8 | alpha-BHC | 0.12IU |
| 319-85-7 | beta-BHC | 0.12IU |
| 319-86-8 | delta-BHC | 0.12IU |
| 58-87-9 | gamma-BHC (Lindane) | 0.12IU |
| 76-44-8 | Heptachlor | 0.12IU |
| 309-00-2 | Aldrin | 0.12IU |
| 1024-57-3 | Heptachlor epoxide | 0.12IU |
| 959-98-8 | Endosulfan I | 0.12IU |
| 60-57-1 | Dieldrin | 0.25IU |
| 72-55-9 | 4,4'-DDE | 0.25IU |
| 72-20-8 | Endrin | 0.25IU |
| 33213-65-9 | Endosulfan II | 0.25IU |
| 72-54-8 | 4,4'-DDD | 0.25IU |
| 1031-07-8 | Endosulfan sulfate | 0.25IU |
| 50-29-3 | 4,4'-DDT | 0.25IU |
| 72-43-5 | Methoxychlor | 1.2IU |
| 53494-70-5 | Endrin ketone | 0.25IU |
| 5103-71-9 | alpha-Chlordane | 1.2IU |
| 5103-74-2 | gamma-Chlordane | 1.2IU |
| 8001-35-2 | Toxaphene | 2.5IU |
| 12674-11-2 | Aroclor-1016 | 1.2IU |
| 11104-28-2 | Aroclor-1221 | 1.2IU |
| 11141-16-5 | Aroclor-1232 | 1.2IU |
| 53469-21-9 | Aroclor-1242 | 1.2IU |
| 12672-27-6 | Aroclor-1248 | 1.2IU |
| 11097-69-1 | Aroclor-1254 | 2.5IU |
| 11096-82-5 | Aroclor-1260 | 2.5IU |

10
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HK039

SWL-TULSA

Contract: 551HQ10

de: SNOR

Case No.: 14772

SAS No.: 55110

SDG No.: HK027

(soil/water) WATER

Lab Sample ID: 555-10

wt/vol: 1000 (g/mL) ML

Lab File ID:

(low/med) LOW

Date Received: 08/27/90

ire: not dec. dec.

Date Extracted: 08/30/90

tion: (SepF/Cont/Sonc) SEPF

Date Analyzed: 09/07/90

snup: (Y/N) N pH: 7.2

Dilution Factor: 1.00

SAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

| | |
|----------------------------------|---------|
| 119-84-6-----alpha-BHC | 0.0501U |
| 119-85-7-----beta-BHC | 0.0501U |
| 319-86-8-----delta-BHC | 0.0501U |
| 58-89-9-----gamma-BHC (Lindane) | 0.0501U |
| 6-44-8-----Heptachlor | 0.0501U |
| 309-00-2-----Aldrin | 0.0501U |
| 1024-57-3-----Heptachlor epoxide | 0.0501U |
| 5-98-8-----Endosulfan I | 0.0501U |
| 0-37-1-----Dieldrin | 0.101U |
| 72-55-9-----4,4'-DDE | 0.101U |
| 72-20-8-----Endrin | 0.101U |
| 3213-05-9-----Endosulfan II | 0.101U |
| 72-54-8-----4,4'-DDD | 0.101U |
| 1031-07-8-----Endosulfan sulfate | 0.101U |
| 0-29-3-----4,4'-DDT | 0.101U |
| 72-43-5-----Methoxychlor | 0.501U |
| 53494-70-5-----Endrin ketone | 0.101U |
| 103-71-3-----alpha-Chlordane | 0.501U |
| 103-74-2-----gamma-Chlordane | 0.501U |
| 8001-35-2-----Toxaphene | 1.01U |
| 2674-11-2-----Aroclor-1016 | 0.501U |
| 1104-28-2-----Aroclor-1221 | 0.501U |
| 11141-16-5-----Aroclor-1232 | 0.501U |
| 53469-21-9-----Aroclor-1242 | 0.501U |
| 2672-29-6-----Aroclor-1248 | 0.501U |
| 11097-59-1-----Aroclor-1254 | 1.01U |
| 11096-82-5-----Aroclor-1260 | 1.01U |

0410

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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Name: SWL-TULSA Contract: 55110010 44045
Code: SWOK Case No.: 14772 SAS No.: 55110 SDG No.: 44027
ix: (soil/water) WATER Lab Sample ID: 5557-11
Le wt/vol: 1000 (g/mL) ML Lab File ID: _____
ii: (low/med) LOW Date Received: 08/07/90
Mixture: not dec. _____ dec. _____ Date Extracted: 08/30/90
Action: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/07/90
Cleanup: (Y/N) N pH: 7.4 Dilution Factor: 1.00

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L g

| | | |
|------------|---------------------|---------|
| 319-84-8 | alpha-BHC | 0.0501U |
| 319-85-7 | beta-BHC | 0.0501U |
| 319-86-8 | delta-BHC | 0.0501U |
| 58-68-8 | gamma-BHC (Lindane) | 0.0501U |
| 76-44-8 | Heptachlor | 0.171 |
| 309-00-2 | Aldrin | 0.0501U |
| 1024-57-3 | Heptachlor epoxide | 0.0501U |
| 959-98-8 | Endosulfan I | 0.0501U |
| 60-57-1 | Dieldrin | 0.101U |
| 72-55-9 | 4,4'-DDE | 0.101U |
| 72-20-8 | Endrin | 0.101U |
| 33213-85-9 | Endosulfan II | 0.101U |
| 72-54-8 | 4,4'-DDD | 0.101U |
| 1031-07-8 | Endosulfan sulfate | 0.101U |
| 50-29-3 | 4,4'-DDT | 0.101U |
| 72-43-5 | Methoxychlor | 0.501U |
| 53494-70-5 | Endrin ketone | 0.101U |
| 5103-71-9 | alpha-Chlordane | 0.501U |
| 5103-74-2 | gamma-Chlordane | 0.501U |
| 8001-35-2 | Toxaphene | 1.01U |
| 12674-11-2 | Aroclor-1016 | 0.501U |
| 11104-28-2 | Aroclor-1221 | 0.501U |
| 11141-16-5 | Aroclor-1232 | 0.501U |
| 53469-21-9 | Aroclor-1242 | 0.501U |
| 12672-29-6 | Aroclor-1248 | 0.501U |
| 11097-69-1 | Aroclor-1254 | 1.01U |
| 11096-82-5 | Aroclor-1260 | 1.01U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA FORM 1601

SWL-TULSA Contract: 5511HQ10
 Case No.: 14772 SAS No.: 55110 SDG No.: HK027
 soil/water) SOIL Lab Sample ID: 5553-12
 wt/vol: 30.0 (g/mL) G Lab File ID:
 (low/med) LOW Date Received: 08/27/90
 Date Extracted: 08/29/90
 Date Analyzed: 09/21/90
 Dilution Factor: 1.00
 Date: not dec. 33 dec. Date
 (Sep/F/Cont/Sonc) SONC
 (Y/N) Y pH: 7.0

| S NO. | COMPOUND | CONCENTRATION UNITS:
(ug/L or ug/kg) UG/KG | Q |
|------------|---------------------|---|---|
| 19-84-6 | alpha-BHC | 21 | U |
| 19-85-7 | beta-BHC | 21 | U |
| 19-86-8 | delta-BHC | 21 | U |
| 58-89-9 | gamma-BHC (Lindane) | 21 | U |
| 7-44-8 | Heptachlor | 21 | U |
| 19-00-2 | Aldrin | 21 | U |
| 1024-57-3 | Heptachlor epoxide | 21 | U |
| 9-83-8 | Endosulfan I | 21 | U |
| 5-3-1 | Dieldrin | 42 | U |
| 72-55-9 | 4,4'-DDE | 42 | U |
| 77-20-8 | Endrin | 42 | U |
| 213-65-9 | Endosulfan II | 42 | U |
| 74-54-8 | 4,4'-DDD | 42 | U |
| 1031-07-8 | Endosulfan sulfate | 42 | U |
| 1-29-3 | 4,4'-DDT | 42 | U |
| 1-43-5 | Methoxychlor | 210 | U |
| 33494-70-5 | Endrin ketone | 42 | U |
| 103-71-9 | alpha-Chlordane | 210 | U |
| 103-74-2 | gamma-Chlordane | 210 | U |
| 3001-35-2 | Toxaphene | 420 | U |
| 17674-11-2 | Aroclor-1016 | 210 | U |
| 104-28-2 | Aroclor-1221 | 210 | U |
| 1141-16-5 | Aroclor-1232 | 210 | U |
| 33469-21-9 | Aroclor-1242 | 210 | U |
| 1672-29-6 | Aroclor-1248 | 210 | U |
| 1097-69-1 | Aroclor-1254 | 420 | U |
| 11096-82-5 | Aroclor-1260 | 420 | U |

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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WUL-TULSA

Contract: 5511HQ10

HK047

SWOK Case No.: 14772

SAS No.: 55110

SDG No.: HK027

(soil/water) WATER

Lab Sample ID: 1553-13

1000 (g/mL) ML

Lab File ID:

(low/med) LOW

Date Received: 08/27/90

re: not dec. dec.

Date Extracted: 08/30/90

on: (SepF/Cont/Sonc) SEPF

Date Analyzed: 09/07/90

nup: (Y/N) N pH: 7.5

Dilution Factor: 1.00

AS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

| | | |
|-----------|---------------------|--------|
| 19-84-6 | alpha-BHC | 0.050U |
| 19-85-7 | beta-BHC | 0.050U |
| 19-86-8 | delta-BHC | 0.050U |
| 8-89-9 | gamma-BHC (Lindane) | 0.050U |
| 6-44-8 | Heptachlor | 0.061U |
| 09-00-2 | Aldrin | 0.050U |
| 024-57-3 | Heptachlor epoxide | 0.050U |
| 59-98-8 | Endosulfan I | 0.050U |
| 0-57-1 | Dieldrin | 0.10U |
| 2-55-9 | 4,4'-DDE | 0.10U |
| 2-20-8 | Endrin | 0.10U |
| 3213-65-9 | Endosulfan II | 0.10U |
| 2-54-8 | 4,4'-DDD | 0.10U |
| 031-07-8 | Endosulfan sulfate | 0.10U |
| 0-29-3 | 4,4'-DDT | 0.10U |
| 2-43-5 | Methoxychlor | 0.50U |
| 3494-70-5 | Endrin ketone | 0.10U |
| 103-71-9 | alpha-Chlordane | 0.50U |
| 103-74-2 | gamma-Chlordane | 0.50U |
| 001-35-2 | Toxaphene | 1.0U |
| 2674-11-2 | Aroclor-1016 | 0.50U |
| 1104-28-2 | Aroclor-1221 | 0.50U |
| 1141-16-5 | Aroclor-1232 | 0.50U |
| 3469-21-9 | Aroclor-1242 | 0.50U |
| 2672-29-6 | Aroclor-1248 | 0.50U |
| 1097-69-1 | Aroclor-1254 | 1.0U |
| 1096-82-5 | Aroclor-1260 | 1.0U |

051

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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Name: SWL-TULSA

Contract: 5511HQ10

HK048

Code: SWOK

Case No.: 14772

SAS No.: 5511Q

SDG No.: HK027

ix: (soil/water) SOIL

Lab Sample ID: 1552-14

le wt/vol: 30.0 (g/mL) G

Lab File ID: _____

li: (low/med) LOW

Date Received: 08/27/90

liture: not dec. 20

dec. _____

Date Extracted: 08/29/90

raction: (SepF/Cont/Sonc) _____

SONC

Date Analyzed: 09/21/90

leanup: (Y/N) Y

pH: 6.5

Dilution Factor: 1.00

CAS NO.

COMPOUND

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/KG

G

| | | | |
|------------|---------------------|-----|---|
| 319-84-8 | alpha-BHC | 20 | U |
| 319-85-7 | beta-BHC | 20 | U |
| 319-86-8 | delta-BHC | 20 | U |
| 58-89-9 | gamma-BHC (Lindane) | 20 | U |
| 76-44-8 | Heptachlor | 20 | U |
| 309-00-2 | Aldrin | 20 | U |
| 1024-57-3 | Heptachlor epoxide | 20 | U |
| 259-98-8 | Endosulfan I | 20 | U |
| 30-57-1 | Dieldrin | 40 | U |
| 72-55-9 | 4,4'-DDE | 40 | U |
| 72-20-8 | Endrin | 40 | U |
| 33213-65-9 | Endosulfan II | 40 | U |
| 72-54-8 | 4,4'-DDD | 40 | U |
| 1031-07-6 | Endosulfan sulfate | 40 | U |
| 50-29-3 | 4,4'-DDT | 40 | U |
| 72-43-5 | Methoxychlor | 200 | U |
| 53494-70-5 | Endrin ketone | 40 | U |
| 5103-71-9 | alpha-Chlordane | 200 | U |
| 5103-74-2 | gamma-Chlordane | 200 | U |
| 8001-35-2 | Toxaphene | 400 | U |
| 12674-11-2 | Aroclor-1016 | 200 | U |
| 11104-28-2 | Aroclor-1221 | 200 | U |
| 11141-16-5 | Aroclor-1232 | 200 | U |
| 53469-21-9 | Aroclor-1242 | 200 | U |
| 12672-29-6 | Aroclor-1248 | 200 | U |
| 11097-69-1 | Aroclor-1254 | 400 | U |
| 11096-82-5 | Aroclor-1260 | 400 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Name: EWL-TULSA

Contract: 5511HQ10

HK049

Code: SWOK

Case No.: 14772

SAS No.: 5511Q

SDG No.: HK027

ix: (soil/water) WATER

Lab Sample ID: 5553-15

wt/vol: 500.0 (g/mL) ML

Lab File ID: _____

(low/med) LOW

Date Received: 08/27/90

ature: not dec. _____ dec. _____

Date Extracted: 08/30/90

ction: (SepF/Cont/Sonc) SEPF

Date Analyzed: 09/07/90

leanup: (Y/N) N pH: 7.5

Dilution Factor: 1.00

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/kg) UG/L 0

| | | |
|------------|---------------------|--------|
| 319-84-6 | alpha-BHC | 0.10IU |
| 319-85-7 | beta-BHC | 0.10IU |
| 319-86-8 | delta-BHC | 0.10IU |
| 58-89-9 | gamma-BHC (Lindane) | 0.10IU |
| 76-44-8 | Heptachlor | 0.10IU |
| 309-00-2 | Aldrin | 0.10IU |
| 1024-57-3 | Heptachlor epoxide | 0.10IU |
| 959-98-8 | Endosulfan I | 0.10IU |
| 60-57-1 | Dieldrin | 0.20IU |
| 72-55-9 | 4,4'-DDE | 0.20IU |
| 72-20-8 | Endrin | 0.20IU |
| 33213-65-9 | Endosulfan II | 0.20IU |
| 72-54-8 | 4,4'-DDD | 0.20IU |
| 1031-07-8 | Endosulfan sulfate | 0.20IU |
| 50-29-3 | 4,4'-DDT | 0.20IU |
| 72-43-5 | Methoxychlor | 1.0IU |
| 53494-70-5 | Endrin ketone | 0.20IU |
| 5103-71-9 | alpha-Chlordane | 1.0IU |
| 5103-74-2 | gamma-Chlordane | 1.0IU |
| 8001-35-2 | Toxaphene | 2.0IU |
| 12674-11-2 | Aroclor-1016 | 1.0IU |
| 11104-28-2 | Aroclor-1221 | 1.0IU |
| 11141-16-5 | Aroclor-1232 | 1.0IU |
| 53469-21-9 | Aroclor-1242 | 1.0IU |
| 12672-29-6 | Aroclor-1248 | 1.0IU |
| 11097-69-1 | Aroclor-1254 | 2.0IU |
| 11096-82-5 | Aroclor-1260 | 2.0IU |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HK050

SWL-TULSA

Contract: 5511HQ10

Mode: SWOK

Case No.: 14772

SAS No.: 55110

SDG No.: HK027

ix: (soil/water) SOIL

Lab Sample ID: 1553-16

wt/vol: 20.0 (g/mL) G

Lab File ID:

low/med) LOW

Date Received: 08/27/90

ture: not dec. 20

dec.

Date Extracted: 08/29/90

action: (SepF/Cont/Sonc)

SONC

Date Analyzed: 09/21/90

eanup: (Y/N) Y

pH: 5.6

Dilution Factor: 1.00

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Q

| | | | |
|------------|---------------------|-----|---|
| 319-84-8 | alpha-BHC | 20 | U |
| 319-85-7 | beta-BHC | 20 | U |
| 319-86-8 | delta-BHC | 20 | U |
| 58-89-9 | gamma-BHC (Lindane) | 20 | U |
| 76-44-8 | Heptachlor | 20 | U |
| 309-00-2 | Aldrin | 20 | U |
| 1024-57-3 | Heptachlor epoxide | 20 | U |
| 9-98-8 | Endosulfan I | 20 | U |
| 60-57-1 | Dieldrin | 40 | U |
| 72-55-9 | 4,4'-DDE | 40 | U |
| 72-20-8 | Endrin | 40 | U |
| 33213-65-9 | Endosulfan II | 40 | U |
| 72-54-8 | 4,4'-DDD | 40 | U |
| 1031-07-8 | Endosulfan sulfate | 40 | U |
| 50-29-3 | 4,4'-DDT | 40 | U |
| 72-43-5 | Methoxychlor | 200 | U |
| 53474-70-5 | Endrin ketone | 40 | U |
| 5103-71-9 | alpha-Chlordane | 200 | U |
| 5103-74-2 | gamma-Chlordane | 200 | U |
| 8001-35-2 | Toxaphene | 400 | U |
| 12674-11-2 | Aroclor-1016 | 200 | U |
| 11104-28-2 | Aroclor-1221 | 200 | U |
| 11141-16-5 | Aroclor-1232 | 200 | U |
| 53469-21-9 | Aroclor-1242 | 200 | U |
| 12672-29-6 | Aroclor-1248 | 200 | U |
| 11097-69-1 | Aroclor-1254 | 400 | U |
| 11096-82-5 | Aroclor-1260 | 400 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPL

Name: SWL-TULSA

Contract: 5511HQ10

HK051

Code: SWOK

Case No.: 14772

SAS No.: 5511Q

SDG No.: HK002

Matrix: (soil/water) WATER

Lab Sample ID: 1353-17

Concentration: (wt/vol) 1000 (g/mL) ML

Lab File ID: _____

Condition: (low/med) LOW

Date Received: 08/27/90

Storage: not dec. _____ dec. _____

Date Extracted: 08/30/90

Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed: 09/07/90

Analysis: (Y/N) N pH: 7.5

Dilution Factor: 1.00

CAS NO.

COMPOUND

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

Q

| | | |
|------------|---------------------|---------|
| 319-84-6 | alpha-BHC | 0.050IU |
| 319-85-7 | beta-BHC | 0.050IU |
| 319-86-8 | delta-BHC | 0.050IU |
| 58-89-9 | gamma-BHC (Lindane) | 0.050IU |
| 76-44-8 | Heptachlor | 0.050IU |
| 309-00-2 | Aldrin | 0.050IU |
| 1024-57-3 | Heptachlor epoxide | 0.050IU |
| 959-98-8 | Endosulfan I | 0.050IU |
| 60-57-1 | Dieldrin | 0.10IU |
| 72-55-9 | 4,4'-DDE | 0.10IU |
| 72-20-8 | Endrin | 0.10IU |
| 33213-65-9 | Endosulfan II | 0.10IU |
| 72-54-8 | 4,4'-DDD | 0.10IU |
| 1031-07-8 | Endosulfan sulfate | 0.10IU |
| 50-29-3 | 4,4'-DDT | 0.10IU |
| 72-43-5 | Methoxychlor | 0.50IU |
| 53494-70-5 | Endrin ketone | 0.10IU |
| 5103-71-9 | alpha-Chlordane | 0.50IU |
| 5103-74-2 | gamma-Chlordane | 0.50IU |
| 8001-35-2 | Toxaphene | 1.0IU |
| 12674-11-2 | Aroclor-1016 | 0.50IU |
| 11104-28-2 | Aroclor-1221 | 0.50IU |
| 11141-16-5 | Aroclor-1232 | 0.50IU |
| 53469-21-9 | Aroclor-1242 | 0.50IU |
| 12672-29-6 | Aroclor-1248 | 0.50IU |
| 11097-69-1 | Aroclor-1254 | 1.0IU |
| 11096-82-5 | Aroclor-1260 | 1.0IU |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Site: SWL-TULSA Contract: 5511H010 HK052

Code: SWOK Case No.: 14772 SAS No.: 55110 SDG No.: HK027

Matrix: (soil/water) WATER Lab Sample ID: 7553-13

Conc: wt/vol: 1000 (g/mL) ML Lab File ID: _____

Flow: (low/med) LOW Date Received: 08/27/90

Stability: not dec. _____ dec. _____ Date Extracted: 08/30/90

Action: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/07/90

Cleanup: (Y/N) N pH: 7.3 Dilution Factor: 1.00

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L g

| | | |
|------------|---------------------|---------|
| 319-84-6 | alpha-BHC | 0.050IU |
| 319-85-7 | beta-BHC | 0.050IU |
| 319-86-8 | delta-BHC | 0.050IU |
| 58-89-9 | gamma-BHC (Lindane) | 0.050IU |
| 76-44-8 | Heptachlor | 0.050IU |
| 309-00-2 | Aldrin | 0.050IU |
| 1024-57-3 | Heptachlor epoxide | 0.050IU |
| 59-98-8 | Endosulfan I | 0.050IU |
| 60-57-1 | Dieldrin | 0.10IU |
| 72-55-9 | 4,4'-DDE | 0.10IU |
| 72-20-8 | Endrin | 0.10IU |
| 33213-65-9 | Endosulfan II | 0.10IU |
| 72-54-8 | 4,4'-DDD | 0.10IU |
| 1031-07-8 | Endosulfan sulfate | 0.10IU |
| 50-29-3 | 4,4'-DDT | 0.10IU |
| 72-43-5 | Methoxychlor | 0.50IU |
| 53494-70-5 | Endrin ketone | 0.10IU |
| 5103-71-9 | alpha-Chlordane | 0.50IU |
| 5103-74-2 | gamma-Chlordane | 0.50IU |
| 8001-35-2 | Toxaphene | 1.0IU |
| 12674-11-2 | Aroclor-1016 | 0.50IU |
| 11104-28-2 | Aroclor-1221 | 0.50IU |
| 11141-16-5 | Aroclor-1232 | 0.50IU |
| 53469-21-9 | Aroclor-1242 | 0.50IU |
| 12672-29-6 | Aroclor-1248 | 0.50IU |
| 11097-69-1 | Aroclor-1254 | 1.0IU |
| 11096-82-5 | Aroclor-1260 | 1.0IU |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Name: SWL-TULSA Contract: 5511HQ10 HK052
Code: SWOK Case No.: 14772 SAS No.: 5511Q SDG No.: HK027
Matrix: (soil/water) SOIL Lab Sample ID: 5557-19
Conc: wt/vol: 30.0 (g/mL) G Lab File ID: _____
Rate: (low/med) LOW Date Received: 08/27/90
Exposure: not dec. 13 dec. _____ Date Extracted: 08/29/90
Extraction: (SepF/Cont/Sonic) SONC Date Analyzed: 09/21/90
Cleanup: (Y/N) Y pH: 6.6 Dilution Factor: 1.00

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/kg) UG/KG

Q

| | | | |
|------------|---------------------|-----|---|
| 319-84-6 | alpha-BHC | 18 | U |
| 319-85-7 | beta-BHC | 18 | U |
| 319-86-8 | delta-BHC | 18 | U |
| 58-89-9 | gamma-BHC (Lindane) | 18 | U |
| 76-44-8 | Heptachlor | 18 | U |
| 309-00-2 | Aldrin | 18 | U |
| 1024-57-3 | Heptachlor epoxide | 18 | U |
| 959-98-8 | Endosulfan I | 18 | U |
| 60-57-1 | Dieldrin | 37 | U |
| 72-55-9 | 4,4'-DDE | 37 | U |
| 72-20-8 | Endrin | 37 | U |
| 33213-65-9 | Endosulfan II | 37 | U |
| 72-54-8 | 4,4'-DDD | 37 | U |
| 1031-07-8 | Endosulfan sulfate | 37 | U |
| 50-29-3 | 4,4'-DDT | 37 | U |
| 72-43-5 | Methoxychlor | 180 | U |
| 53494-70-5 | Endrin ketone | 37 | U |
| 5103-71-9 | alpha-Chlordane | 180 | U |
| 5103-74-2 | gamma-Chlordane | 180 | U |
| 8001-35-2 | Toxaphene | 370 | U |
| 12674-11-2 | Aroclor-1016 | 180 | U |
| 11104-28-2 | Aroclor-1221 | 180 | U |
| 11141-16-5 | Aroclor-1232 | 180 | U |
| 53469-21-9 | Aroclor-1242 | 180 | U |
| 12672-29-6 | Aroclor-1248 | 180 | U |
| 11097-67-1 | Aroclor-1254 | 370 | U |
| 11096-82-5 | Aroclor-1260 | 370 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Name: SWL-TULSA Contract: 551HQ10 HK054

Code: SWOK Case No.: 14772 SAS No.: 551Q SDG No.: HK027

ix: (soil/water) SOIL Lab Sample ID: 1553-20

ie wt/vol: 30.0 (g/mL) G Lab File ID: _____

li: (low/med) LOW Date Received: 08/27/90

isture: not dec. 21 dec. _____ Date Extracted: 08/29/90

action: (SepF/Cont/Sonc) SONC Date Analyzed: 09/21/90

Cleanup: (Y/N) Y pH: 5.1 Dilution Factor: 1.00

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG G

| | | | |
|------------|---------------------|-----|---|
| 319-84-6 | alpha-BHC | 20 | U |
| 319-85-7 | beta-BHC | 20 | U |
| 319-86-8 | delta-BHC | 20 | U |
| 58-69-9 | gamma-BHC (Lindane) | 20 | U |
| 76-44-8 | Heptachlor | 20 | U |
| 309-00-2 | Aldrin | 20 | U |
| 1024-57-3 | Heptachlor epoxide | 20 | U |
| 959-98-8 | Endosulfan I | 20 | U |
| 60-57-1 | Dieldrin | 41 | U |
| 72-55-9 | 4,4'-DDE | 41 | U |
| 72-20-8 | Endrin | 41 | U |
| 33213-65-9 | Endosulfan II | 41 | U |
| 72-54-8 | 4,4'-DDD | 41 | U |
| 1031-07-8 | Endosulfan sulfate | 41 | U |
| 50-29-3 | 4,4'-DDT | 41 | U |
| 72-43-5 | Methoxychlor | 200 | U |
| 53494-70-5 | Endrin ketone | 41 | U |
| 5107-71-9 | alpha-Chlordane | 200 | U |
| 5103-74-2 | gamma-Chlordane | 200 | U |
| 8001-35-2 | Toxaphene | 410 | U |
| 12674-11-2 | Aroclor-1016 | 200 | U |
| 11104-28-2 | Aroclor-1221 | 200 | U |
| 11141-16-5 | Aroclor-1232 | 200 | U |
| 53469-21-9 | Aroclor-1242 | 200 | U |
| 12672-27-5 | Aroclor-1248 | 200 | U |
| 11097-59-1 | Aroclor-1254 | 410 | U |
| 11096-82-5 | Aroclor-1260 | 410 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Name: BWL-711 Contract: 5511HQ10 HR055
Code: SWOH Case No.: 14772 SAS No.: 5511Q SDG No.: HR027
ix: (soil/water) SOIL Lab Sample ID: 7357-01
le wt/vol: 30.0 (g/mL) G Lab File ID: _____
il: (low/med) LOW Date Received: 08/27/90
isture: not dec. 5 dec. Date Extracted: 08/29/90
action: (SepF/Cont/Sonc) SONC Date Analyzed: 09/21/90
Cleanup: (Y/N) Y pH: 8.7 Dilution Factor: 1.00

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG Q

| | | | |
|------------|--------------------------|-----|---|
| 319-34-6 | -----alpha-BHC | 17 | U |
| 319-85-7 | -----beta-BHC | 17 | U |
| 319-86-8 | -----delta-BHC | 17 | U |
| 58-89-9 | -----gamma-BHC (Lindane) | 17 | U |
| 76-44-8 | -----Heptachlor | 17 | U |
| 309-00-2 | -----Aldrin | 17 | U |
| 1024-57-3 | -----Heptachlor epoxide | 17 | U |
| 959-98-8 | -----Endosulfan I | 17 | U |
| 60-57-1 | -----Dieldrin | 34 | U |
| 72-55-9 | -----4,4'-DDE | 34 | U |
| 72-20-8 | -----Endrin | 34 | U |
| 33215-65-9 | -----Endosulfan II | 34 | U |
| 72-54-8 | -----4,4'-DDD | 34 | U |
| 1031-07-8 | -----Endosulfan sulfate | 34 | U |
| 50-29-3 | -----4,4'-DDT | 34 | U |
| 72-43-5 | -----Methoxychlor | 170 | U |
| 53494-70-5 | -----Endrin ketone | 34 | U |
| 5103-71-9 | -----alpha-Chlordane | 170 | U |
| 5103-74-2 | -----gamma-Chlordane | 170 | U |
| 8001-35-2 | -----Toxaphene | 340 | U |
| 12674-11-2 | -----Aroclor-1016 | 170 | U |
| 11104-28-2 | -----Aroclor-1221 | 170 | U |
| 11141-16-5 | -----Aroclor-1232 | 170 | U |
| 53469-21-9 | -----Aroclor-1242 | 170 | U |
| 12672-29-6 | -----Aroclor-1248 | 170 | U |
| 11097-67-1 | -----Aroclor-1254 | 340 | U |
| 11096-82-5 | -----Aroclor-1260 | 340 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPL

HK056

Agency: SWL-TULSA Contract: 5511HQ10
 Code: SWOK Case No.: 14772 SAS No.: 5511Q SDG No.: HK02
 Matrix: (soil/water) SOIL Lab Sample ID: 5552-22
 Concent: (wt/vol): 30.0 (g/mL) G Lab File ID: _____
 Frequency: (low/med) LOW Date Received: 08/27/90
 Exposure: not dec. 14 dec. _____ Date Extracted: 08/29/90
 Action: (SepF/Cont/Sonc) SONC Date Analyzed: 09/21/90
 Cleanup: (Y/N) Y pH: 7.8 Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NO.

COMPOUND

Q

| | | | |
|------------|---------------------|-----|---|
| 319-84-6 | alpha-BHC | 19 | U |
| 319-85-7 | beta-BHC | 19 | U |
| 319-86-8 | delta-BHC | 19 | U |
| 58-89-9 | gamma-BHC (Lindane) | 19 | U |
| 76-44-8 | Heptachlor | 19 | U |
| 309-00-2 | Aldrin | 19 | U |
| 1024-57-3 | Heptachlor epoxide | 19 | U |
| 59-98-8 | Endosulfan I | 19 | U |
| 60-57-1 | Dieldrin | 37 | U |
| 72-55-9 | 4,4'-DDE | 37 | U |
| 72-20-8 | Endrin | 37 | U |
| 33213-65-9 | Endosulfan II | 37 | U |
| 72-54-8 | 4,4'-DDD | 37 | U |
| 1031-07-8 | Endosulfan sulfate | 37 | U |
| 50-29-3 | 4,4'-DDT | 37 | U |
| 72-43-5 | Methoxychlor | 190 | U |
| 53494-70-5 | Endrin ketone | 37 | U |
| 5103-71-9 | alpha-Chlordane | 190 | U |
| 5103-74-2 | gamma-Chlordane | 190 | U |
| 8001-35-2 | Toxaphene | 370 | U |
| 12674-11-2 | Aroclor-1016 | 190 | U |
| 11104-28-2 | Aroclor-1221 | 190 | U |
| 11141-16-5 | Aroclor-1232 | 190 | U |
| 53469-21-9 | Aroclor-1242 | 190 | U |
| 12672-29-6 | Aroclor-1248 | 190 | U |
| 11097-59-1 | Aroclor-1254 | 370 | U |
| 11096-82-5 | Aroclor-1260 | 370 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Name: SWL-TULSA

Contract: 551HQ10

HK057

Code: SWOK

Case No.: 14772

SAS No.: 551Q

SDG No.: HK027

Matrix: (soil/water) SOIL

Lab Sample ID: 7553-27

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: _____

Level: (low/med) LOW

Date Received: 08/27/90

Moisture: not dec. 7 dec. _____

Date Extracted: 08/29/90

Extraction: (SepF/Cont/Sonic) SONIC

Date Analyzed: 09/21/90

Cleanup: (Y/N) Y pH: 8.6

Dilution Factor: 1.00

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Q

| | | | |
|------------|---------------------|-----|---|
| 319-84-6 | alpha-BHC | 17 | U |
| 319-85-7 | beta-BHC | 17 | U |
| 319-86-8 | delta-BHC | 17 | U |
| 58-89-9 | gamma-BHC (Lindane) | 17 | U |
| 76-44-8 | Heptachlor | 17 | U |
| 309-00-2 | Aldrin | 17 | U |
| 1024-57-3 | Heptachlor epoxide | 17 | U |
| 959-98-8 | Endosulfan I | 17 | U |
| 60-57-1 | Dieldrin | 17 | U |
| 72-55-9 | 4,4'-DDE | 34 | U |
| 72-20-8 | Endrin | 34 | U |
| 33213-65-9 | Endosulfan II | 34 | U |
| 72-54-8 | 4,4'-DDD | 34 | U |
| 1031-07-8 | Endosulfan sulfate | 34 | U |
| 50-29-3 | 4,4'-DDT | 34 | U |
| 72-43-5 | Methoxychlor | 34 | U |
| 53494-70-5 | Endrin ketone | 170 | U |
| 5103-71-9 | alpha-Chlordane | 34 | U |
| 5103-74-2 | gamma-Chlordane | 170 | U |
| 8001-35-2 | Toxaphene | 170 | U |
| 12674-11-2 | Aroclor-1016 | 340 | U |
| 11104-28-2 | Aroclor-1221 | 170 | U |
| 11141-16-5 | Aroclor-1232 | 170 | U |
| 53469-21-9 | Aroclor-1242 | 170 | U |
| 12672-29-6 | Aroclor-1248 | 170 | U |
| 11097-89-1 | Aroclor-1254 | 170 | U |
| 11096-82-5 | Aroclor-1260 | 340 | U |
| | | 340 | U |

REGION VIII SUMMARY OF DATA QUALITY ASSURANCE REVIEW

Case No.: 14772

TDD No.: F08-9005-08

Site: Bitterroot Valley Sanitary Landfill, Victor, MT

Contractor Laboratory: Southwest Laboratory of Oklahoma

Data Reviewer : Stacey Smith

Date of Review: 11-14-90

Sample Matrix: 2 Soils and 18 Waters

Analysis: Full RAS Organics: VOA, BNA, and Pesticides/PCBs

Sample Nos.: HK018, HK019, HK020, HK021, HK022, HK023, HK024, HK025,
HK026, HK028, HK029, HK031, HK032, HK033, HK036, HK040,
HK041, HK042, HK043, HK044

- () Data are acceptable for use.
- (X) Data are acceptable for use with qualifications noted.
- () Data are preliminary - pending verification.
- () Data are unacceptable.

Action required by DPO?

No X Yes The following items require action:

Action required by project officer?

No X Yes

REVIEW SUMMARY:

The data for this case was of high quality and very few qualifications were necessary to render the data usable and acceptable. All T.C.L. and T.I.C. identifications were appropriate. With two exceptions, all necessary qualifications were blank related.

All BNA results in sample HK029 were flagged "J" because of a lengthy holding time of 27 days which exceeds the control criteria of 7 days. This sample's positive data, two unknown T.I.C.s, were not affected because they were previously flagged with a "J" by the laboratory.

All BNA results in sample HK043 had a "J" qualifier added due to the fact that two surrogate recoveries were below control limits. The only positive data in this sample was bis(2-Ethylhexyl)phthalate which already had a "J" qualifier issued by the laboratory.

The rest of the qualifications were all blank associated. Contaminants were found in all eight VOA blanks and in four of the five BNA blanks. The common laboratory contaminants Methylene chloride and Chloroform were found in VOA blanks. If these analytes were detected in samples at level less than 10 times the amount in the associated blank, then the laboratory qualifiers "BJ" or "B" were changed to "U" and the sample concentration changed to the SURL. These contaminants are common organic solvents.

All BNA blanks contained 1 to 2 phthalates. Some blanks contained an additional 2 to 3 unknown compounds and/or 2,4-bis(1,1-Dimethylethyl) phenol or Hexadecanoic acid. Phthalates are common contaminants associated with plastics and may be the result of insufficient cleaning or the use of plastic containers. If any of these contaminants were found in samples at level less than five times the amount in the associated laboratory blanks, then the same qualifications as described above were rendered. The only significant positive data affected were TIC #3 in HK024, TIC #1 in HK025 and TIC #1 in HK042. Based on relative retention times, these three TICs were determined to be blank contaminants and were qualified "U", undetected.

Although there were some other minor quality control problems that are described below, no other positive data was affected.

ORGANICS (VOA, SEMIVOLATILES, BNA)

1.0 HOLDING TIMES

Holding times are established and monitored to ensure analytical results accurately represent analyte concentrations in a sample at the time of collection. Exceeding the holding time for a sample generally affects a loss of the analyte due to a variety of mechanisms, such as deposition on the sample container walls, co-precipitation with particulates and volatilization through leaks in the container.

REVIEW RESULTS:

VOA holding times ranged from 5 to 8 days for water samples and were 9 days for soil samples. BNA holding times ranged from 5 to 7 days for all samples except HK029 which had a 27 day holding time. With the exception of sample HK029, these holding times are acceptable and no data qualification was required. All results in HK029 had a "J" qualifier added if it was not already present. Note that definitive holding times for soil samples have not been established yet.

2.0 GC/MS TUNING

Prior to sample analysis, GC/MS tuning is carried out on the analytical instrumentation using Bromofluorobenzene (BFB) for the volatile (VOA) fraction and Decafluorotriphenylphosphine (DFTPP) for the semivolatile (BNA) fraction. For these compounds, certain ions in their mass spectra must be present in specific amounts to ensure the instrumentation is correctly tuned and can produce proper mass resolution, identification and sensitivity. The failure of the lab to meet GC/MS tuning criteria indicates severe deficiencies exist with the GC/MS system being used.

REVIEW RESULTS:

All tune criteria were satisfied by both fractions.

3.0 CALIBRATION

Prior to sample analysis the GC/MS system is initially calibrated at five concentrations for each VOA and BNA Target Compound List (TCL) compound to determine the linearity of response. For each compound an Average Relative Response Factor (RRF) is determined which is later used for compound quantification in sample results. A Relative Standard Deviation (RSD) for the average RRF is also calculated and must be less than the established quality control percentage value. Low RRF values and high RSD values are indicative of unsatisfactory instrument calibration and the system may not be capable of acceptable performance for compounds exhibiting such deficiencies. Calibration must be verified each 12 hour period for a GC/MS system; continuing calibration results check satisfactory maintenance and adjustment on a day to day basis. A continuing calibration RRF value is calculated for each TCL compound and this value is compared to the initial calibration average RRF value. Continuing calibration compound results with low RRF values and/or high RRF % difference values indicate the instrument is no longer correctly calibrated for these compounds.

REVIEW RESULTS:

Calibrational difficulties were minor, limited and typical. There were two calibration problems in the VOA fraction and three in the BNA fraction.

In the VOA continuing calibration 8-30-90, the analyte 2-Butanone had a RRF50 of 0.040 which is below the control limit of 0.050. In the continuing calibration on 9-1-90 five analytes had %Ds greater than the control limit of 25.0%. The analytes 2-Butanone, Vinyl acetate, 4-Methyl-2-pentanone, 2-Hexanone, and 1,1,2,2-Tetrachloroethane had %Ds of 45.8%, 32.1%, 54.3%, 56.2%, and 37.2% respectively. No positive data was affected so no data flags were issued.

In the initial calibration for the BNA fraction, the analyte Benzo(k)fluoranthene had a %RSD of 52.2% which exceeds the control limit of 30%. In the following continuing calibrations on 9-19-90 and 9-20-90, the analyte 3-Nitroaniline had %Ds of 28.6% and 53.2% respectively which exceeds the control limit of 25%. Again, no positive data was affected so no data flags were issued.

4.0 BLANKS

Laboratory method blank samples are evaluated to assess the existence and magnitude of possible contamination problems. Comparison of sample results to compound concentrations found in blanks makes it possible to determine if these compounds were actually present in the sample or perhaps were introduced as a contaminant during some phase of the analysis procedure.

REVIEW RESULTS:

Contaminants were found in most all laboratory blanks for both fractions as the following table illustrates:

| BLANK | CONTAMINANT | CONC ug/l | QUALIFYING
CONC ug/l |
|-------|--|-----------|-------------------------|
| VBLK1 | Chloroform | 1 | 10 |
| VBLK2 | Chloroform | 2 | 20 |
| VBLK3 | Chloroform | 5 | 50 |
| VBLK4 | Methylene Chloride | 9 | 90 |
| VBLK5 | Methylene Chloride | 5 | 50 |
| VBLK6 | Methylene Chloride | 13 | 130 |
| VBLK7 | Chloroform | 3 | 30 |
| | Methylene Chloride | 6 | 60 |
| VBLK8 | Methylene Chloride | 0.8 | 8 |
| SBLK1 | - | - | - |
| SBLK2 | bis(2-Ethylhexyl)phthalate | 69 | 345 |
| | Unknown Compound (RT 3.58) | 11000 | 55000 |
| | Unknown Compound (RT 15.92) | 270 | 1350 |
| SBLK3 | bis(2-Ethylhexyl)phthalate | 72 | 360 |
| | Unknown Compound (RT 3.57) | 11000 | 55000 |
| | Unknown Compound (RT 15.94) | 530 | 2650 |
| | Unknown Compound (RT 31.79) | 5700 | 28500 |
| SBLK4 | Di-n-butyl phthalate | 0.5 | 2.5 |
| | bis(2-Ethylhexyl)phthalate | 34 | 170 |
| | 2,4-bis(1,1-Dimethylethyl)phenol
(RT 14.09) | 2 | 10 |
| SBLK5 | Di-n-butyl phthalate | 2 | 10 |
| | bis(2-Ethylhexyl)phthalate | 2 | 10 |
| | Hexadecanoic Acid (RT 18.40) | 3 | 15 |
| | Unknown Compound (RT 21.07) | 7 | 35 |
| | Unknown Compound (RT 22.54) | 2 | 10 |
| | Unknown compound (RT 24.69) | 7 | 35 |

If these contaminants were found in samples at levels less than the qualifying amount, then the qualifiers "B" or "BJ" were change to "U" and the amount changed to the SORL. The qualifying amounts are 10 times the blank amounts for common laboratory contaminants and 5 the blank amounts for the other less common contaminants.

- * V indicates VOA blanks
- * S indicates BNA blanks

5.0 SURROGATE SPIKE RECOVERY

Laboratory performance of individual samples is established by means of surrogate spiking activities. All samples are spiked with surrogate compounds prior to preparation and analysis. Unusually low or high surrogate recovery values may indicate some deficiency in the analytical system or some matrix effect exists, resulting in similarly low or high sample results for other compounds as well.

REVIEW RESULTS:

Although surrogate recoveries were within control limits for the VOA fraction, there were a few problems in the BNA fraction. The BNA surrogate recoveries were generally low but within control limits. The following samples had recoveries below control limits.

| <u>SAMPLE</u> | <u>SURROGATE</u> | <u>RECOVERY</u> | <u>LIMITS</u> |
|---------------|------------------|-----------------|---------------|
| HK020 | 2-Fluorophenol | 13 | 21-100 |
| HK026 | 2-Fluorobiphenyl | 40 | 43-116 |
| HK041 | 2-Fluorobiphenyl | 41 | 43-116 |
| HK043 | 2-Fluorophenol | 12 | 21-100 |
| " | Phenol-d5 | 10 | 10-94 |

Results for HK043 had a "J" qualifier added to reflect the low recoveries of two surrogates.

6.0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE ANALYSIS (MS/MSD)

The MS/MSD analysis is designed to evaluate what possible affect the inherent sample matrix might have on compound recovery. To assess the possible matrix effect, specific compounds are spiked into a selected sample and a duplicate of that sample. The spike recoveries and relative % difference (RPD) between the sample and the duplicate are then determined. Poor spike recoveries and high RPD values may indicate a significant matrix is present and is adversely affecting sample results for that particular matrix or sample medium.

REVIEW RESULTS:

VOA Sample HK026

RPD: 3 of 5 outside control limits

Spike Recovery: 1 of 10 outside control limits

Sample HK044

RPD: 0 of 5 outside control limits

spike Recovery: 0 of 10 outside control limits

5.0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE ANALYSIS (MS/MSD) (con't)

REVIEW RESULTS:

BNA Sample HK021

RPD: 2 of 11 outside control limits

Spike Recovery: 0 of 22 outside control limits

Sample HK044

RPD: 0 of 11 outside control limits

Spike Recovery: 0 of 22 outside control limits

7.0 INTERNAL STANDARDS PERFORMANCE

Target compound list (TCL) components identified in samples are quantified using internal standards which are spiked at specific concentrations into each sample. The retention times and chromatogram peak areas for the internal standards in each sample must fall within established quality control limits to ensure that sample quantitation is correct.

REVIEW RESULTS:

All internal standard criteria were satisfied by both fractions.

8.0 COMPOUND IDENTIFICATION

The presence of all TCL compounds found in samples is verified by comparing the mass spectra for the sample compounds to mass spectra obtained from pure standard compounds when run through the GC/MS systems. Retention times for sample compounds are also checked and should match retention times established by the calibration standards. If a sample compound does not meet these criteria, it should be rejected on the basis of tentative evidence.

REVIEW RESULTS:

T.C.L. and T.I.C. identifications were appropriate and no identification modification was necessary. In the BNA fraction, many T.I.C.s were also found in the blanks. If the sample concentration of these of these T.I.C.s was less than five times the amount in the associated blank then the laboratory qualifiers of "J" or "BJ" were changed to "U".

PESTICIDE DATA

1.0 HOLDING TIMES

REVIEW RESULTS:

Holding times ranged from 5 to 7 days for all samples which is acceptable.

2.0 INSTRUMENT PERFORMANCE

Four separate requirements are established to ensure that adequate resolution are achieved by the chromatographic system: 1) DDT retention times are evaluated to check for adequate separation of individual components; 2) retention time windows are calculated and used in compound identification; 3) DDT/Endrin degradation and 4) Retention time shifts for dibutylchlorendate (DBC) are checked to evaluate the condition of the separation column.

REVIEW RESULTS:

All instrument performance criteria were satisfied.

3.0 CALIBRATION

Prior to sample analysis, "calibration factors" and % relative standard deviations (%RSD) are checked in "linearity standards" to ensure satisfactory instrument calibration. Following the successful analysis of these standards a specific 72 hour sample and standard analysis sequence must be followed.

REVIEW RESULTS:

All calibration criteria were satisfied.

4.0 BLANKS

REVIEW RESULTS:

There were no contaminants nor interfering compounds found in the blanks.

5.0 SURROGATE RECOVERY

REVIEW RESULTS:

All surrogate recoveries were within control limits.

6.0 MS/MSD

REVIEW RESULTS:

Sample HK021

RPD: 1 of 6 outside control limits

Spike Recovery: 6 of 12 outside control limits

Sample HK018

RPD: 0 of 6 outside control limits

Spike Recovery: 0 of 12 outside control limits

Sample HK044

RPD: 0 of 6 outside control limits

Spike Recovery: 2 of 12 outside control limits

7.0 COMPOUND IDENTIFICATION

Target pesticide compounds identified in a sample are confirmed by checking retention times. Confirmation is also achieved by running the sample through a second column (dual column confirmation). Positive sample results are tentative unless these criteria are met.

REVIEW RESULTS:

All pesticide "hits" were confirmed by secondary column analysis.

VOLATILE ORGANICS ANALYSIS DATA SHEET

CRA Sample No.

Name: EWL-TULSA Contract: 5511401 # 015

Code: SWD Case No.: 14772 CAS No.: 55114 SDB No.: 14772

trip: (soil water) WATER Lab Sample ID: 14772

spile wt/vol: 5.0 g/mL ML Lab File #: 55114

rel: (flow/med) LOW Date Received: 3/27/80

moisture: not dec. Date Analyzed: 3/27/80

run: back cap CAP Dilution Factor: 1

CAS NO.

COMPOUND

CONCENTRATION (UNIT):
µg/L or % vol

| | | | |
|------------|---------------------------------|----|----|
| 74-87-7 | -----Chloromethane | 10 | U |
| 74-83-2 | -----Bromomethane | 10 | U |
| 75-01-4 | -----Vinyl Chloride | 10 | U |
| 75-00-3 | -----Chloroethane | 10 | U |
| 75-09-1 | -----Methylene Chloride | 1 | 80 |
| 67-64-1 | -----Acetone | 10 | U |
| 75-15-0 | -----Carbon Disulfide | 11 | U |
| 75-35-4 | -----1,1-Dichloroethene | 5 | 10 |
| 75-34-3 | -----1,1-Dichloroethane | 5 | 10 |
| 540-59-0 | -----1,2-Dichloroethene (total) | 5 | 10 |
| 67-66-3 | -----Chloroform | 5 | 10 |
| 107-06-2 | -----1,2-Dichloroethane | 5 | 10 |
| 78-93-3 | -----3-Butanone | 10 | 10 |
| 71-55-6 | -----1,1,1-Trichloroethane | 5 | 10 |
| 56-10-3 | -----Carbon Tetrachloride | 5 | 10 |
| 108-05-4 | -----Vinyl Acetate | 10 | 10 |
| 75-27-4 | -----Bromodichloromethane | 5 | 10 |
| 78-87-5 | -----1,2-Dichloropropane | 5 | 10 |
| 10061-01-3 | -----cis-1,2-Dichloropropene | 5 | 10 |
| 79-01-6 | -----Trichloroethene | 10 | 10 |
| 124-48-1 | -----Dibromochloromethane | 10 | 10 |
| 79-00-5 | -----1,1,2-Trichloroethane | 10 | 10 |
| 71-43-2 | -----Benzene | 10 | 10 |
| 10061-02-5 | -----trans-1,2-Dichloropropene | 10 | 10 |
| 75-25-2 | -----Bromoform | 10 | 10 |
| 108-10-1 | -----4-Methyl-2-Pentanone | 10 | 10 |
| 591-78-3 | -----2-Hexanone | 10 | 10 |
| 127-18-4 | -----Tetrachloroethene | 10 | 10 |
| 78-74-5 | -----1,1,1,2-Tetrachloroethane | 10 | 10 |
| 108-88-7 | -----Toluene | 10 | 10 |
| 108-90-7 | -----Chlorobenzene | 10 | 10 |
| 100-41-4 | -----Ethylbenzene | 10 | 10 |
| 100-42-5 | -----Styrene | 10 | 10 |
| 1000-20-7 | -----Xylene (total) | 10 | 10 |

QUANTITATIVE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

TPS - SAMPLE NO.

DATE

Client: BWL-CHLOR Contract: 91110101
 Job: BWCH Case No.: 11771 SDB No.: 91110 SDB No.: 11771
 Sample: soil/water WATER Lab Sample ID: 11771
 Wt/vol: 2.1 g/mL 1L Lab File ID: 11771
 (low/med) LOW Date Received: 10/27/90
 Nature: not spec. Date Analyzed: 10/27/90
 (pack/cap) CRP Dilution Factor: 1

TICs found: 1

CONCENTRATION UNITS:
 (ug/L or ug/g) ug/L

| NUMBER | COMPOUND NAME | RT | EST. CONC. |
|--------|---------------|-------|------------|
| ===== | ===== | ===== | ===== |
| ===== | ===== | ===== | ===== |

0028

FOR: WDA-TIC

1. ST. REV.

021

022

13

023

13

019

13

020

VOLATILE ORGANICS ANALYSIS DATA SHEET

REF. SAMPLE _____

Name: ENL-HULEL Contract: 331-4010 0010

Job: SWO1 Class No.: 1773 GAS Vol. 1500 SDB No.: 1-001

Matrix: soil/water WATER Lab Sample ID: 153010

Lab wt/vol: 1.0 g/mL mL Lab File ID: 15301

Flow: (low/med) LOW Date Received: 10/21/80

Pressure: not dec. Date Analyzed: 8/1/80

Int: back/cap CAP Dilution Factor: 1.1

| CAS NO. | COMPOUND | CONCENTRATION UNITS: | |
|------------|----------------------------|-----------------------|---|
| | | ug/L or ug/g or ug/gL | g |
| 71-57-7 | Chloromethane | 50 | J |
| 74-83-9 | Bromomethane | 50 | J |
| 75-01-4 | Vinyl Chloride | 50 | J |
| 75-00-7 | Chloroethane | 50 | J |
| 75-09-2 | Methylene Chloride | 150 | J |
| 67-64-1 | Acetone | 19 | J |
| 75-15-0 | Carbon Disulfide | 25 | J |
| 75-35-4 | 1,1-Dichloroethene | 15 | J |
| 75-34-3 | 1,1-Dichloroethane | 11 | J |
| 540-59-0 | 1,2-Dichloroethene (total) | 8 | J |
| 67-66-3 | Chloroform | 540 | J |
| 107-06-2 | 1,2-Dichloroethane | 15 | J |
| 78-97-3 | 2-Butanone | 50 | J |
| 71-55-6 | 1,1,1-Trichloroethane | 15 | J |
| 56-23-5 | Carbon Tetrachloride | 15 | J |
| 108-05-4 | Vinyl Acetate | 50 | J |
| 75-17-4 | Bromodichloromethane | 15 | J |
| 78-67-5 | 1,2-Dichloropropane | 15 | J |
| 10061-01-5 | cis-1,3-Dichloropropene | 15 | J |
| 72-01-6 | Trichloroethene | 15 | J |
| 124-48-1 | Dibromochloromethane | 15 | J |
| 79-00-5 | 1,1,2-Trichloroethane | 15 | J |
| 71-43-2 | Benzene | 15 | J |
| 10061-02-6 | trans-1,3-Dichloropropene | 15 | J |
| 75-35-2 | Bromoform | 15 | J |
| 108-10-1 | 4-Methyl-2-Pentanone | 50 | J |
| 591-78-2 | 2-Hexanone | 50 | J |
| 127-18-4 | Tetrachloroethene | 15 | J |
| 79-04-5 | 1,1,1,2-Tetrachloroethane | 15 | J |
| 108-88-3 | Toluene | 15 | J |
| 108-90-7 | Chlorobenzene | 15 | J |
| 100-41-4 | Ethylbenzene | 15 | J |
| 100-42-5 | Styrene | 15 | J |
| 1330-20-7 | Xylene (total) | 15 | J |

0033

13
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

174 SAMPLE NO.

0019

Name: BWL-TULSA Location: CELL-010
 Use: SWD Case No.: 4772 SRS No.: 55110 IDG No.: 44021
 (soil/water) WATER Lab Sample ID: 100010
 Amt/vol: 1.0 g/mL: ML Lab File ID: 10007
 (low/med) LOW Date Received: 08/07/90
 Nature: not dec. Date Analyzed: 08/01/90
 In (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS:

or TICs found: 1 ug/L or ug/g or ug/L

| NO NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|-----------|------------------|------|------------|---|
| | UNKNOWN COMPOUND | 0.29 | 15 | J |

0034

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA FORM 816-1

Name: SWL-TULSA Location: SE1000 Mode: 0001
 Code: SW01 Case No.: 1777 CAS No.: 15110 SDG No.: 1000
 In: (soil, water) WATER Lab Sample ID: 13501
 Vol: wt/vol: 5.0 g/mL 10 Lab File ID: 00047
 Cell: (low/med) LOW Date Received: 5/27/90
 Moisture: not rec. Date Analyzed: 5/27/90
 Unit: (pack/cab) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION (UNIT):
μg/L or L/g or 100 μg/L | U |
|------------|----------------------------|--|---|
| 74-87-7 | Chloromethane | 10 | U |
| 74-87-9 | Bromomethane | 10 | U |
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-00-7 | Chloroethane | 10 | U |
| 75-09-3 | Methylene Chloride | 10 | U |
| 67-64-1 | Acetone | 10 | U |
| 75-15-0 | Carbon Disulfide | 10 | U |
| 75-35-4 | 1,1-Dichloroethene | 10 | U |
| 75-34-3 | 1,1-Dichloroethane | 10 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 10 | U |
| 67-66-7 | Chloroform | 10 | U |
| 107-06-2 | 1,2-Dichloroethane | 10 | U |
| 78-93-2 | 2-Butanone | 10 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 10 | U |
| 56-23-5 | Carbon Tetrachloride | 10 | U |
| 108-05-4 | Vinyl Acetate | 10 | U |
| 75-37-4 | Bromodichloromethane | 10 | U |
| 78-97-3 | 1,2-Dichloropropane | 10 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 10 | U |
| 79-01-5 | Trichloroethene | 10 | U |
| 124-48-1 | Dibromodichloromethane | 10 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 10 | U |
| 71-43-2 | Benzene | 10 | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 10 | U |
| 75-25-2 | Bromoform | 10 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 10 | U |
| 591-78-2 | 2-Hexanone | 10 | U |
| 127-18-6 | Tetrachloroethene | 10 | U |
| 79-74-7 | 1,1,1,2-Tetrachloroethane | 10 | U |
| 108-88-7 | Toluene | 10 | U |
| 108-90-7 | Chlorobenzene | 10 | U |
| 100-41-4 | Ethylbenzene | 10 | U |
| 100-41-7 | Styrene | 10 | U |
| 120-67-7 | Xylene (total) | 10 | U |

01

15
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

151 SAMPLE NO.

Name: BWL-TULSA Contract: 151-4010
 Job: SWOW Date Recd: 1/27/75 Lab. No.: 151-10 ID: 151-10
 Mat: soil, water WATER Lab Sample ID: 151-10
 Sple wt/vol: 5.0 g/mL ML Lab File ID: 151-10
 Site: (low/med) LOW Date Received: 1/27/75
 Disture: not dec. _____ Date Analyzed: 1/27/75
 Jmn (pack/cap) GAP Dilution Factor: 1.0

per TICs found: 0 CONCENTRATION UNIT:
ug/L or ug/kg or ug/g

| MS NUMBER | COMPOUND NAME | UNIT | SET | INC. |
|-----------|---------------|-------|-------|-------|
| ===== | ===== | ===== | ===== | ===== |

0047

VOLATILE ORGANICS ANALYSIS DATA SHEET

FD-304

-01-

Name: BWL-TWILER Contract: 9711001
 Code: SWO Case No.: 1-777 Lab No.: 18107 DOB: 1-1-77
 Site: SOIL WATER WATER Lab Sample ID: 18107
 Date Rec'd: 8/25/90
 Vol: (low/mid) LOW Date Analyzed: 9/20/90
 Moisture: not dec. Dilution Factor: 1.0
 Units: (pack/cap) CAP

| CAS NO. | COMPOUND | CONCENTRATION UNITS:
µg/L or ng/L or %G/L | % |
|------------|----------------------------|--|----|
| 74-87-3 | Chloromethane | | 0 |
| 74-83-9 | Bromomethane | | 0 |
| 75-01-4 | Vinyl Chloride | | 0 |
| 75-00-3 | Chloroethane | | 0 |
| 75-09-2 | Methylene Chloride | 3 | 0 |
| 67-64-1 | Acetone | 130 | 0 |
| 75-15-0 | Carbon Disulfide | | 10 |
| 75-35-4 | 1,1-Dichloroethene | | 10 |
| 75-34-3 | 1,1-Dichloroethane | | 10 |
| 540-59-0 | 1,2-Dichloroethene (total) | | 10 |
| 67-66-3 | Chloroform | 18 | 0 |
| 107-06-2 | 1,2-Dichloroethane | 10 | 0 |
| 78-93-3 | 2-Butanone | 10 | 0 |
| 71-55-6 | 1,1,1-Trichloroethane | 10 | 0 |
| 56-23-5 | Carbon Tetrachloride | 10 | 0 |
| 108-05-4 | Vinyl Acetate | 10 | 0 |
| 75-37-4 | Bromodichloromethane | 10 | 0 |
| 78-87-5 | 1,2-Dichloropropane | 10 | 0 |
| 10061-01-3 | trans-1,2-Dichloropropene | 10 | 0 |
| 79-01-6 | Trichloroethene | 10 | 0 |
| 124-48-1 | Dibromochloromethane | 10 | 0 |
| 79-00-3 | 1,1,2-Trichloroethane | 10 | 0 |
| 71-43-2 | Benzene | 10 | 0 |
| 10061-02-5 | trans-1,2-Dichloropropene | 10 | 0 |
| 75-25-3 | Bromotoluene | 10 | 0 |
| 108-10-1 | 4-Methyl-2-Pentanone | 10 | 0 |
| 591-78-3 | 2-Hexanone | 10 | 0 |
| 127-18-4 | Tetrachloroethene | 10 | 0 |
| 79-74-5 | 1,1,1,2-Tetrachloroethane | 10 | 0 |
| 108-88-7 | Toluene | 10 | 0 |
| 108-90-7 | Chlorobenzene | 10 | 0 |
| 100-41-4 | Ethylbenzene | 10 | 0 |
| 100-42-5 | Styrene | 10 | 0 |
| 1330-20-7 | Xylene (total) | 10 | 0 |

0052

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO. _____

Name: SWL-TULSA Contract: SEA/NOI
 Code: SWOK Case No.: 14771 SAG No.: 15410 SOG No.: 14403
 1: (soil/water) WATER Lab Sample ID: 154301
 2: wt/vol: 5.0 g/mL ML Lab File ID: 15336
 3: (low/med) LOW Date Received: 8/25/90
 4: Nature: not dec. _____ Date Analyzed: 9/29/90
 5: (pack/cap) EAR Dilution Factor: 1

6: per TICs found: 1 CONCENTRATION UNIT: ug/L or ug/g or ug/g

| SAG NUMBER | COMPOUND NAME | RT | EST. CONC. |
|------------|------------------|------|------------|
| 1. | UNKNOWN COMPOUND | 2.87 | 100 |

0053

VOLATILE ORGANICS ANALYSIS DATA SHEET

CRA SAMPLE NO.

-0001

Name: SWL-TULSA Address: 5511401
 Code: SWOK Case No.: 4777 CAS No.: 55110 DOB: 01-01-01
 (Type: (soil/water) WATER Lab Sample ID: 154901
 Sample wt/vol: 5.0 g/mL Lab File ID: 15592
 Well: (low/med) LOW Date Received: 08/25/97
 Moisture: not dec. Date Analyzed: 09/29/97
 Location: (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS:
(ug/L or ug/g for SOIL) | 0 |
|------------|----------------------------|---|---|
| 74-87-3 | Chloromethane | 10 | U |
| 74-83-2 | Bromomethane | 10 | U |
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-00-3 | Chloroethane | 10 | U |
| 75-09-3 | Methylene Chloride | 5 | U |
| 67-64-1 | Acetone | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethane | 5 | U |
| 75-34-3 | 1,1-Dichloroethane | 5 | U |
| 540-59-0 | 1,2-Dichloroethane (total) | 5 | U |
| 67-66-3 | Chloroform | 5 | U |
| 107-06-2 | 1,2-Dichloroethane | 5 | U |
| 78-93-3 | 2-Butanone | 10 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5 | U |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 108-05-4 | Vinyl Acetate | 10 | U |
| 75-37-4 | Bromodichloromethane | 5 | U |
| 78-87-5 | 1,2-Dichloropropane | 5 | U |
| 10061-01-5 | cis-1,2-Dichloropropene | 5 | U |
| 79-01-6 | Trichloroethene | 5 | U |
| 124-48-1 | Dibromochloromethane | 5 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 5 | U |
| 10061-02-5 | trans-1,2-Dichloropropene | 5 | U |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 10 | U |
| 591-78-6 | 2-Hexanone | 5 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 79-74-5 | 1,1,2,2-Tetrachloroethane | 5 | U |
| 108-88-7 | Toluene | 5 | U |
| 108-90-7 | Chlorobenzene | 5 | U |
| 100-41-4 | Ethylbenzene | 5 | U |
| 100-42-5 | Styrene | 5 | U |
| 1330-20-7 | Xylene (total) | 5 | U |

13
VOLATILE ORGANIC ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB NUMBER

Client: SWL-TULSA Contract: 6510-01
 Case: SWOK Case No.: 4777 CAS No.: 6510 ID: 6510
 1. soil/water WATER Lab Sample ID: 75570
 2. wt/vol: 5.0 g/mL Lab File ID: 75570
 3. (low/mid) LOW Date Received: 08/08/90
 4. nature: not dec. Date Analyzed: 8/22/90
 5. con (pack/cap) CAP Dilution Factor: 1

per TICs found: 0 CONCENTRATION: NITE:
 mg/L or μ g/L or 3.0

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. |
|------------|---------------|-------|------------|
| ===== | ===== | ===== | ===== |
| | | | |

0063

FORM 1, PCA-TIC

1/87 Rev.

VOLATILE ORGANIC ANALYSIS DATA SHEET

FED. SAMPLE NO.

NAME: SWL-TULSA Contract: 5514000 11-11

Code: SWOK Case No.: 44772 CAS No.: 55140 DOB: 11-11-1961

Matrix (soil/water): WATER Lab Sample ID: 154900

Wt/vol: 1.0 g/mL ML Lab File ID: 154900

Flow (low/med): LOW Date Received: 12-15-90

Disturb: not dec. Date Analyzed: 12-28-90

Unit (pack/cap): GAP Dilution Factor: 1

CAS NO. COMPOUND CONCENTRATION UNITS:
(µg/L or mg/L) UG/L

| | | | |
|------------|---------------------------|-----|---|
| 74-87-3 | Chloromethane | 17 | J |
| 74-83-2 | Bromomethane | 17 | J |
| 75-01-4 | Vinyl Chloride | 17 | J |
| 75-00-3 | Chloroethane | 17 | J |
| 75-09-2 | Methylene Chloride | 4 | J |
| 67-64-1 | Acetone | 17 | J |
| 75-15-0 | Carbon Disulfide | 8 | J |
| 75-35-4 | 1,1-Dichloroethene | 8 | J |
| 75-34-3 | 1,1-Dichloroethane | 4 | J |
| 540-59-0 | 1,2-Dichloroethene total | 8 | J |
| 67-66-3 | Chloroform | 260 | S |
| 107-06-2 | 1,2-Dichloroethane | 8 | J |
| 78-93-3 | 2-Butanone | 17 | J |
| 71-55-6 | 1,1,1-Trichloroethane | 8 | J |
| 56-23-5 | Carbon Tetrachloride | 8 | J |
| 108-05-4 | Vinyl Acetate | 17 | J |
| 75-27-4 | Bromodichloromethane | 8 | J |
| 78-87-5 | 1,2-Dichloropropane | 8 | J |
| 10061-01-5 | cis-1,2-Dichloropropane | 8 | J |
| 79-01-8 | Trichloroethene | 8 | J |
| 124-48-1 | Dibromochloromethane | 8 | J |
| 79-00-5 | 1,1,2-Trichloroethane | 8 | J |
| 71-43-2 | Pentene | 8 | J |
| 10061-02-1 | trans-1,2-Dichloropropane | 8 | J |
| 75-25-3 | Bromoform | 8 | J |
| 108-10-1 | Methyl-2-Pentanone | 17 | J |
| 591-78-2 | 3-Hexanone | 17 | J |
| 127-18-4 | Tetrachloroethene | 10 | J |
| 79-14-5 | 1,1,2,2-Tetrachloroethane | 8 | J |
| 108-88-7 | Toluene | 8 | J |
| 108-90-7 | Chlorobenzene | 8 | J |
| 100-41-4 | Ethylbenzene | 8 | J |
| 100-42-5 | Styrene | 10 | J |
| 100-20-7 | styrene total | 10 | J |

0066

FORM 1 VOA

1/87 Rev.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.

Code: SWL-TULSA Concentration: 100000 1000
Code: SWOK Case No.: 10000 SPS No.: 10000 SDB No.: 10000
1. (soil/water) WATER Lab Sample ID: 10000
2. wt/vol: 1.0 Lab File ID: 10000
3. (low/med) LOW Date Received: 10/15/90
4. Nature: not dec. Date Analyzed: 10/20/90
5. (pack/cap) CAP Dilution Factor: 1.0

or TICs found: 0

CONCENTRATION UNIT:
μg/L or mg/L or %

| AS NUMBER | COMPOUND NAME | AT | EST. CONC. |
|-----------|---------------|-------|------------|
| | | | |

VOLATILE ORGANICS ANALYSIS DATA SHEET

194 SAMPLE NO.

4004

Lab: SHL-TULSAContract: 3511-001Lab: SWOKCase No.: 14773SAS No.: 5511-001SOS: 1.1 40041. (soil/water) WATERLab Sample ID: 1157142. (wt/vol): 5.0 g/mL MLLab File ID: 503483. (low/med) LOWDate Received: 3/27/90Sture: not dec. Date Analyzed: 3/29/904. (pack/cap) Dilution Factor: 1.0

CAS NO.

COMPOUND

CONCENTRATION UNITS:

(ug/L or ug/g for USCL)

0

| | | | |
|------------|---------------------------------|-----|----|
| 74-87-3 | -----Chloromethane | 1 | U |
| 74-83-9 | -----Bromomethane | 10 | U |
| 75-01-4 | -----Vinyl Chloride | 10 | U |
| 75-00-3 | -----Chloroethane | 10 | U |
| 75-09-2 | -----Methylene Chloride | 10 | SD |
| 67-64-1 | -----Acetone | 4 | U |
| 75-15-0 | -----Carbon Disulfide | 10 | U |
| 75-35-4 | -----1,1-Dichloroethene | 10 | U |
| 75-34-3 | -----1,1-Dichloroethane | 10 | U |
| 540-59-0 | -----1,2-Dichloroethene (total) | 10 | U |
| 67-66-3 | -----Chloroform | 110 | U |
| 107-06-2 | -----1,2-Dichloroethane | 10 | U |
| 78-93-3 | -----2-Butanone | 10 | U |
| 71-55-6 | -----1,1,1-Trichloroethane | 10 | U |
| 56-23-5 | -----Carbon Tetrachloride | 10 | U |
| 108-05-4 | -----Vinyl Acetate | 10 | U |
| 75-27-4 | -----Bromodichloromethane | 10 | U |
| 78-87-5 | -----1,2-Dichloropropane | 10 | U |
| 10061-01-5 | -----cis-1,2-Dichloropropane | 10 | U |
| 79-01-6 | -----Trichloroethene | 10 | U |
| 124-48-1 | -----Dibromochloromethane | 10 | U |
| 79-00-5 | -----1,1,2-Trichloroethane | 10 | U |
| 71-43-2 | -----Benzene | 10 | U |
| 10061-02-8 | -----trans-1,2-Dichloropropane | 10 | U |
| 75-25-2 | -----Bromoform | 10 | U |
| 108-10-1 | -----4-Methyl-2-Pentanone | 10 | U |
| 591-78-6 | -----3-Hexanone | 10 | U |
| 127-18-4 | -----Tetrachloroethene | 10 | U |
| 79-34-5 | -----1,1,2,2-Tetrachloroethane | 10 | U |
| 108-88-7 | -----Toluene | 10 | U |
| 108-90-7 | -----Chlorobenzene | 10 | U |
| 100-41-4 | -----Ethylbenzene | 10 | U |
| 100-42-5 | -----Styrene | 10 | U |
| 1330-20-7 | -----Xylene (total) | 10 | U |

0076

12
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SP4 SAMPLE 0.

Name: SWL-TULSA Contract: SE114011 MOD4
Code: SWOK Case No.: 14777 SAS No.: SE113 SCS No.: SL001
Mat (soil/water): WATER Lab Sample ID: 755114
File wt/vol: 5.0 g/mL, ML Lab File ID: 52448
Mat (low/med): LOW Date Received: 08/27/90
Disture: not dec. Date Analyzed: 09/20/90
Con (pack/cap): Dilution Factor: 1.0

per TICs found: 0 CONCENTRATION UNITS:
ug/L or ng/g or ug/g

| SAS NUMBER | COMPOUND NAME | AT | RET. CONC. | U |
|------------|---------------|-------|------------|-------|
| ===== | ===== | ===== | ===== | ===== |

1A VOLATILE ORGANICS ANALYSIS DATA SHEET

150 APR 10, 1991

4-013

net: EWL-TULSA Cont: 55114010
 net: EWOK Case No.: 14772 SAS No.: 55110 BDG No.: 4-011
 (soil/water): WATER Lab Sample ID: 755504
 wt/vol: 5.0 g/mL ML Lab File ID: 52-49
 (low/med): LOW Date Received: 08/07/90
 (pure): not dec. Date Analyzed: 08/07/90
 (pack/cap): CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS:
(g/L or ug/Kg) <u>UG/L</u> | |
|------------|----------------------------|--|----|
| 74-87-3 | Chloromethane | 10 | U |
| 74-83-9 | Bromomethane | 10 | U |
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-00-3 | Chloroethane | 10 | U |
| 75-09-2 | Methylene Chloride | 1 | BD |
| 67-64-1 | Acetone | | |
| 75-15-0 | Carbon Disulfide | | |
| 75-35-4 | 1,1-Dichloroethene | | |
| 75-34-3 | 1,1-Dichloroethane | | |
| 540-59-0 | 1,2-Dichloroethene (total) | | |
| 67-66-3 | Chloroform | | |
| 107-06-2 | 1,2-Dichloroethane | | |
| 78-93-3 | 2-Butanone | 10 | U |
| 71-55-6 | 1,1,1-Trichloroethene | | |
| 56-23-5 | Carbon Tetrachloride | | |
| 108-05-4 | Vinyl Acetate | 10 | U |
| 75-27-4 | Bromodichloromethane | | |
| 78-87-5 | 1,2-Dichloropropane | | |
| 10061-01-5 | cis-1,2-Dichloropropene | | |
| 79-01-6 | Trichloroethene | | |
| 124-48-1 | Dibromochloromethane | | |
| 79-00-5 | 1,1,2-Trichloroethene | | |
| 71-43-2 | Benzene | | |
| 10061-02-5 | trans-1,2-Dichloropropene | | |
| 75-25-2 | Bromotoluene | | |
| 108-10-1 | 4-Methyl-2-Pentanol | 10 | U |
| 591-78-6 | 2-Hexanone | 10 | U |
| 127-18-4 | Tetrachloroethene | | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | | |
| 108-88-7 | Toluene | | |
| 108-90-7 | Chlorobenzene | | |
| 100-41-4 | Ethylbenzene | | |
| 100-42-5 | Styrene | | |
| 1330-20-7 | Xylene (total) | | |

FORM VOA

008
1/8

026
028
021
020

18
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA FORM 816-0

Site: SWL-TULSA Contract: 33110010 Project: 4000
 Date: SWOK Case No.: 14770 SAS No.: 33110 SDS No.: 4001
 1. soil/water: WATER Lab Sample ID: 33310
 2. wt/vol: 5.0 g/mL ML Lab File ID: 33310
 3. (low/med): LOW Date Received: 09/07/90
 4. store: not dec. _____ Date Analyzed: 09/10/90
 5. (pack/cap): CAP Dilution Factor: 1.0

Concentration Units:
 (ug/L or ug/g) UG/L
 TICs found: 0

| S NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|----------|---------------|-------|------------|-------|
| ===== | ===== | ===== | ===== | ===== |

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA FORM

4001

SWL-TULSA Contract: 55114010
 SWOK Case No.: 14772 SAS No.: 55110 SDG No.: 4001
 (soil/water) WATER Lab Sample ID: 754904
 (t/vol): 5.0 g/mL ML Lab File ID: 00591
 (low/med) LOW Date Received: 08/05/90
 ure: not dec. Date Analyzed: 08/05/90
 (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L | 0 |
|------------|----------------------------|--|---|
| 74-87-3 | Chloromethane | 10 | U |
| 74-83-9 | Bromomethane | 10 | U |
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-00-3 | Chloroethane | 10 | U |
| 75-09-2 | Methylene Chloride | 4 | U |
| 67-64-1 | Acetone | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 5 | U |
| 75-34-3 | 1,1-Dichloroethane | 5 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 | U |
| 67-66-3 | Chloroform | 5 | U |
| 107-06-2 | 1,2-Dichloroethane | 5 | U |
| 78-93-3 | 2-Butanone | 10 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5 | U |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 108-05-4 | Vinyl Acetate | 10 | U |
| 75-27-4 | Bromodichloromethane | 5 | U |
| 78-87-5 | 1,2-Dichloropropane | 5 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 5 | U |
| 79-01-6 | Trichloroethene | 5 | U |
| 124-48-1 | Dibromochloromethane | 5 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 5 | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 5 | U |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 10 | U |
| 91-78-9 | 2-Hexanone | 10 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 | U |
| 108-88-3 | Toluene | 5 | U |
| 108-90-7 | Chlorobenzene | 5 | U |
| 100-41-4 | Ethylbenzene | 5 | U |
| 100-42-5 | Styrene | 5 | U |
| 1330-20-7 | ethylene (total) | 5 | U |

0090

026
034
028
029
031
032

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

4006

Lab: SWL-TULSA Contract: 55114012
 Code: SWOK Case No.: 14772 SAS No.: 55112 SDG No.: 4K021
 M (soil/water) WATER Lab Sample ID: 224904
 Wt/vol: 5.0 g/mL ML Lab File ID: 10531
 I (low/med) LOW Date Received: 13/03/90
 Status: not dec. _____ Date Analyzed: 18/03/90
 n (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/kg) UG/L

or TICs found: 0

| AG NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|-----------|---------------|-------|------------|-------|
| ===== | ===== | ===== | ===== | ===== |
| ===== | ===== | ===== | ===== | ===== |

0091

1A VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

4403

Job: SM-TULSA Contract: 3311HQ10
 Job: SMOK Case No.: 14772 GAS No.: 73110 SOG No.: 14772
 1) (soil/water) WATER Lab Sample ID: 734905
 2) (wt/vol): 5.0 (g/mL) ML Lab File ID: 00580
 3) (low/med) LOW Date Received: 08/25/97
 4) (store: not dec.) Date Analyzed: 08/28/97
 5) (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS:
 (ug/L or ug/kg) UG/L

| CAS NO. | COMPOUND | | |
|------------|----------------------------|-----|---|
| 74-87-3 | Chloromethane | 10 | U |
| 74-83-9 | Bromomethane | 10 | U |
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-00-3 | Chloroethane | 10 | U |
| 75-09-2 | Methylene Chloride | 5 | U |
| 67-64-1 | Acetone | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 5 | U |
| 75-34-3 | 1,1-Dichloroethane | 5 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 | U |
| 67-66-3 | Chloroform | 5 | U |
| 107-06-2 | 1,2-Dichloroethane | 5 | U |
| 78-93-3 | 2-Butanone | 10 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5 | U |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 108-05-4 | Vinyl Acetate | 10 | U |
| 75-27-4 | Bromodichloromethane | 5 | U |
| 78-87-5 | 1,2-Dichloropropane | 5 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 5 | U |
| 79-01-6 | Trichloroethene | 5 | U |
| 124-48-1 | Dibromochloromethane | 5 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 5 | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 5 | U |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 10 | U |
| 591-78-6 | 2-Hexanone | 10 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 | U |
| 108-88-7 | Toluene | 0.1 | U |
| 108-90-7 | Chlorobenzene | 5 | U |
| 100-41-4 | Ethylbenzene | 5 | U |
| 100-42-5 | Styrene | 5 | U |
| 1330-20-7 | xylene (total) | 5 | U |

0095

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

41005

100: SM-TULSA Contract: 55114010
 200: SNOK Case No.: 14770 SAS No.: 55110 EDG No.: 41001
 3: (soil/water) WATER Lab Sample ID: 054905
 4: wt/vol: 5.0 (g/mL) ML Lab File ID: 10590
 5: (low/med) LOW Date Received: 06/05/90
 6: sture: not dec. Date Analyzed: 08/09/90
 7: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

8: TICs found: 0

| 9: NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|-----------|---------------|-------|------------|-------|
| ===== | ===== | ===== | ===== | ===== |
| | | | | |
| | | | | |

0096

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SP4 SAMPLE NO.

--007

Site: SHL-TULSA Contract: 95114010
 Date: SHOK Case No.: 14770 SAS No.: 95110 SDG No.: HK001
 (soil/water) WATER Lab Sample ID: 954906
 wt/vol: 5.0 g/mL ML Lab File ID: 00674
 (low/med) LOW Date Received: 08/25/90
 Status: not dec. Date Analyzed: 09/29/90
 (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS:
(ug/L or ug/Kg) <u>UG/L</u> | Q |
|------------|----------------------------|---|---|
| 74-87-3 | Chloromethane | 10 | U |
| 74-83-9 | Bromomethane | 10 | U |
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-00-3 | Chloroethane | 10 | U |
| 75-09-2 | Methylene Chloride | 5 | U |
| 67-64-1 | Acetone | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 5 | U |
| 75-34-3 | 1,1-Dichloroethane | 5 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 | U |
| 67-66-3 | Chloroform | 5 | U |
| 107-06-2 | 1,2-Dichloroethane | 5 | U |
| 78-93-3 | 2-Butanone | 10 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5 | U |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 108-05-4 | Vinyl Acetate | 10 | U |
| 75-27-4 | Bromodichloromethane | 5 | U |
| 78-87-5 | 1,2-Dichloropropane | 5 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 5 | U |
| 79-01-6 | Trichloroethene | 5 | U |
| 124-48-1 | Dibromochloromethane | 5 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 5 | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 5 | U |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 10 | U |
| 591-78-6 | 2-Hexanone | 10 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 | U |
| 108-88-3 | Toluene | 5 | U |
| 108-90-7 | Chlorobenzene | 5 | U |
| 100-41-4 | Ethylbenzene | 5 | U |
| 100-42-5 | Styrene | 5 | U |
| 1330-20-7 | Xylene (total) | 5 | U |

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE ID: 01

4025

101 SM-TULSA

Contract: 55114016

101 SWOK

Case No.: 14770

SAS No.: 75110

SDG No.: 44021

1 (soil/water) WATER

Lab Sample ID: 754905

2 wt/vol: 5.0 g/mL ML

Lab File ID: ED674

(low/med) LOW

Date Received: 08/05/91

3 nature: not dec.

Date Analyzed: 08/22/90

4 (pack/cap) CAP

Dilution Factor: 1.0

CONCENTRATION UNITS:

(ug/L or ug/Kg) ug/L

5 TICs found: 0

| NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|--------|---------------|-------|------------|-------|
| ===== | ===== | ===== | ===== | ===== |

0101

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036

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032

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPD SAMPLE NO.

Site: SM-TULSA

Contract: 55114010

---071

Site: SNOK

Case No.: 14772

SAS No.: 55110

SDG No.: #001

1: (soil/water) WATER

Lab Sample ID: 754207

2: wt/vol: 5.0 (g/mL) ML

Lab File ID: 10575

(low/med) LOW

Date Received: 08/09/90

3: Nature: not dec. ---

Date Analyzed: 08/09/90

4: (pack/cap) CAP

Dilution Factor: 1.0

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/g) UG/L

0

| | | | |
|------------|----------------------------|----|---|
| 74-87-3 | Chloromethane | 10 | U |
| 74-83-9 | Bromomethane | 10 | U |
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-00-3 | Chloroethane | 10 | U |
| 75-09-2 | Methylene Chloride | 5 | U |
| 67-64-1 | Acetone | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 5 | U |
| 75-34-3 | 1,1-Dichloroethane | 5 | U |
| 840-59-0 | 1,2-Dichloroethene (total) | 5 | U |
| 67-66-3 | Chloroform | 5 | U |
| 107-06-2 | 1,2-Dichloroethane | 5 | U |
| 78-93-3 | 2-Butanone | 10 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5 | U |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 108-05-4 | Vinyl Acetate | 10 | U |
| 75-27-4 | Bromodichloromethane | 5 | U |
| 78-87-5 | 1,2-Dichloropropane | 5 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 5 | U |
| 79-01-6 | Trichloroethene | 5 | U |
| 124-48-1 | Dibromochloromethane | 5 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 5 | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 5 | U |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 10 | U |
| 891-78-6 | 2-Hexanone | 10 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 | U |
| 108-88-3 | Toluene | 5 | U |
| 108-90-7 | Chlorobenzene | 5 | U |
| 100-41-4 | Ethylbenzene | 5 | U |
| 100-42-5 | Styrene | 5 | U |
| 1330-20-7 | Xylene (total) | 5 | U |

0104

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE ID:

44001

Site: SNL-TULSA

Contract: 55114010

Code: SNOK

Case No.: 14772

SAS No.: 55117

SDG No.: 44001

1. (soil/water) WATER

Lab Sample ID: 254907

2. wt/vol: 5.0 (g/mL) ML

Lab File ID: 00575

3. T (low/med) LOW

Date Received: 08/25/90

4. Nature: not dec.

Date Analyzed: 08/29/90

5. (pack/cap) CAP

Dilution Factor: 1.0

6. TICs found: 0

CONCENTRATION UNITS:

(ug/L or ug/Hg) UG/L

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|------------|---------------|-------|------------|-------|
| ===== | ===== | ===== | ===== | ===== |

0105

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

4002

Site: SH-TULSA

Contract: 3511HQ10

Case: SHOK

Case No.: 14775

SAS No.: 35110

SDG No.: 40021

1. (soil/water) WATER

Lab Sample ID: 354908

2. (L/vol): 5.0 (g/mL) ML

Lab File ID: 30575

3. (low/med) LOW

Date Received: 08/25/90

4. (not dec.)

Date Analyzed: 08/29/90

5. (pack/cap) CAP

Dilution Factor: 1.0

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

| CAS NO. | COMPOUND | CONCENTRATION UNITS:
(ug/L or ug/Kg) | UG/L |
|------------|----------------------------|---|------|
| 74-87-3 | Chloromethane | 10 | U |
| 74-83-9 | Bromomethane | 10 | U |
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-00-3 | Chloroethane | 10 | U |
| 75-09-2 | Methylene Chloride | 10 | U |
| 67-64-1 | Acetone | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 5 | U |
| 75-34-3 | 1,1-Dichloroethane | 5 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 | U |
| 67-66-3 | Chloroform | 10 | U |
| 107-06-2 | 1,2-Dichloroethane | 5 | U |
| 78-93-3 | 2-Butanone | 10 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5 | U |
| 54-23-5 | Carbon Tetrachloride | 5 | U |
| 108-05-4 | Vinyl Acetate | 10 | U |
| 75-27-4 | Bromodichloromethane | 5 | U |
| 78-87-5 | 1,2-Dichloropropane | 5 | U |
| 10061-01-5 | cis-1,2-Dichloropropene | 5 | U |
| 79-01-6 | Trichloroethene | 5 | U |
| 124-48-1 | Dibromochloromethane | 5 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 5 | U |
| 10061-02-6 | trans-1,2-Dichloropropene | 5 | U |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 10 | U |
| 591-78-6 | 2-Hexanone | 10 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 | U |
| 108-88-3 | Toluene | 5 | U |
| 108-90-7 | Chlorobenzene | 5 | U |
| 100-41-4 | Ethylbenzene | 5 | U |
| 100-42-5 | Styrene | 5 | U |
| 1330-20-7 | xylene (total) | 5 | U |

VE
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

11-072

Site: SNL-TULSA Contract: 55114010
 Code: SWOK Case No.: 14772 SAS No.: 55110 SDG No.: 44001
 Matrix (soil/water): WATER Lab Sample ID: 013906
 Concentration (wt/vol): 5.0 (ug/mL) ML Lab File ID: 00576
 Level (low/med): LOW Date Received: 08/25/90
 Disturbance: not dec. Date Analyzed: 08/28/90
 Container (pack/cap): CAP Dilution Factor: 1.0

Number of TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/kg) UG/L

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|------------|---------------|-------|------------|-------|
| ===== | ===== | ===== | ===== | ===== |

0111

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA 816F

Case: SML-TULSA Contract: 5511H01 4-077
 Case: BWOK Case No.: 14775 SAS No.: 55110 SDG No.: ---
 (soil/water) WATER Lab Sample ID: 754909
 ug/vol: 5.0 (ug/mL) ML Lab File ID: 00685
 (low/med) LOW Date Received: 08/05/90
 Disturb: not dec. --- Date Analyzed: 08/09/90
 (pack/cap) CAP Dilution Factor: 1.0

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/kg) ug/L

| | | | |
|--------------|----------------------------|----|---|
| 1-74-87-3 | Chloromethane | 10 | U |
| 1-74-83-9 | Bromomethane | 10 | U |
| 1-78-01-4 | Vinyl Chloride | 10 | U |
| 1-75-00-3 | Chloroethane | 10 | U |
| 1-75-09-2 | Methylene Chloride | 4 | U |
| 1-67-64-1 | Acetone | 10 | U |
| 1-75-15-0 | Carbon Disulfide | 5 | U |
| 1-75-35-4 | 1,1-Dichloroethane | 5 | U |
| 1-75-34-3 | 1,1-Dichloroethane | 5 | U |
| 1-540-59-0 | 1,2-Dichloroethane (total) | 5 | U |
| 1-67-66-3 | Chloroform | 5 | U |
| 1-107-06-2 | 1,2-Dichloroethane | 5 | U |
| 1-78-93-3 | 2-Butanone | 10 | U |
| 1-71-55-6 | 1,1,1-Trichloroethane | 5 | U |
| 1-54-23-5 | Carbon Tetrachloride | 5 | U |
| 1-108-05-4 | Vinyl Acetate | 10 | U |
| 1-73-27-4 | Bromodichloromethane | 5 | U |
| 1-78-87-5 | 1,2-Dichloropropane | 5 | U |
| 1-10061-01-5 | cis-1,3-Dichloropropene | 5 | U |
| 1-79-01-6 | Trichloroethene | 5 | U |
| 1-124-48-1 | Dibromochloromethane | 5 | U |
| 1-79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 1-71-43-2 | Benzene | 5 | U |
| 1-10061-02-6 | trans-1,3-Dichloropropene | 5 | U |
| 1-75-23-2 | Bromoform | 5 | U |
| 1-108-10-1 | 4-Methyl-2-Pentanone | 10 | U |
| 1-591-78-6 | 2-Hexanone | 10 | U |
| 1-127-18-4 | Tetrachloroethene | 5 | U |
| 1-79-34-5 | 1,1,2,2-Tetrachloroethane | 5 | U |
| 1-108-68-3 | Toluene | 5 | U |
| 1-108-90-7 | Chlorobenzene | 5 | U |
| 1-100-41-4 | Ethylbenzene | 5 | U |
| 1-100-42-5 | Styrene | 5 | U |
| 1-1330-20-7 | Xylene (total) | 5 | U |

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SFA SAMPLE NO. _____

1.000

Contract: 5511H010

SM-TULSA

Case No.: 14770

SAS No.: 55110

SDG No.: 44001

SNOK

Mat (soil/water) WATER

Lab Sample ID: 754909

Mat wt/vol: 5.0 (g/mL) mL

Lab File ID: 00605

Mat (low/med) LOW

Date Received: 08/05/90

Mat (pure) not dec.

Date Analyzed: 08/08/90

Mat (pack/cap) CAP

Dilution Factor: 1.0

CONCENTRATION UNITS:

(ug/L or ug/g) UG/L

Per TICs found: 0

| COM NUMBER | COMPOUND NAME | RT | EST. CONC. | 0 |
|------------|---------------|-------|------------|-------|
| ===== | ===== | ===== | ===== | ===== |
| ===== | ===== | ===== | ===== | ===== |

0119

VOLATILE ORGANICS ANALYSIS DATA SHEET

44078

WELL NO. -TULSA

Contract: 5511HQ10

WELL ROCK

Case No.: 14772

SAS No.: 5511Q

SDG No.: 44001

LIQ (kg/L) WATER

Lab Sample ID: 75210

LIQ (g/mL) ML

Lab File ID: 10578

LIQ (low/med) LOW

Date Received: 08/25/90

Mixture: not dec.

Date Analyzed: 08/29/90

UNIT (pack/cap) CAP

Dilution Factor: 1.0

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

Q

| CAS NO. | COMPOUND | UG/L | Q |
|------------|----------------------------|------|---|
| 74-87-3 | Chloromethane | 10 | U |
| 74-83-9 | Bromomethane | 10 | U |
| 75-01-4 | Vinyl Chloride | 10 | U |
| 78-00-3 | Chloroethane | 10 | U |
| 78-09-2 | Methylene Chloride | 5 | U |
| 67-64-1 | Acetone | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 78-35-4 | 1,1-Dichloroethene | 5 | U |
| 78-34-3 | 1,1-Dichloroethane | 5 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 | U |
| 67-66-3 | Chloroform | 5 | U |
| 107-06-2 | 1,2-Dichloroethane | 5 | U |
| 78-93-3 | 2-Butanone | 10 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5 | U |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 108-05-4 | Vinyl Acetate | 10 | U |
| 75-27-4 | Bromodichloromethane | 5 | U |
| 78-87-5 | 1,2-Dichloropropane | 5 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 5 | U |
| 79-01-6 | Trichloroethene | 5 | U |
| 124-48-1 | Dibromochloromethane | 5 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 5 | U |
| 10061-02-5 | trans-1,3-Dichloropropene | 5 | U |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 10 | U |
| 591-78-6 | 2-Hexanone | 10 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 | U |
| 108-88-3 | Toluene | 5 | U |
| 108-90-7 | Chlorobenzene | 5 | U |
| 100-41-4 | Ethylbenzene | 5 | U |
| 100-42-5 | Styrene | 5 | U |
| 1330-20-7 | Xylene (total) | 5 | U |

C124

IS
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HR075

State: SNL-TULSA

Contract: 5511HQ10

Code: SWOK

Case No.: 14772

SAS No.: 55110

SDG No.: HW021

Matrix (soil/water) WATER

Lab Sample ID: 754910

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: CD635

Disturbance (low/med) LOW

Date Received: 08/25/90

Disturbance: not dec.

Date Analyzed: 09/12/90

Container (pack/cap) CAP

Dilution Factor: 1.0

Number of TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|------------|---------------|-------|------------|-------|
| ===== | ===== | ===== | ===== | ===== |

0125

040
041

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

0040

Site: SN-TULSA

Contract: 5511P010

Case: SNOK

Case No.: 14772

SAS No.: 55110

SDG No.: 41021

Mat: (soil/water) WATER

Lab Sample ID: 134911

Mo wt/vol: 5.0 g/mL ML

Lab File ID: 00677

Flow: (low/med) LOW

Date Received: 08/25/90

Mixture: not dec.

Date Analyzed: 08/30/90

Unit: (pack/cap) CAP

Dilution Factor: 1.0

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/g) UG/L

g

| | | | |
|------------|----------------------------|----|---|
| 74-87-3 | Chloromethane | 10 | U |
| 74-83-9 | Bromomethane | 10 | U |
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-00-3 | Chloroethane | 10 | U |
| 75-09-2 | Methylene Chloride | 5 | U |
| 67-64-1 | Acetone | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 5 | U |
| 75-34-5 | 1,1-Dichloroethane | 5 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 | U |
| 67-66-3 | Chloroform | 5 | U |
| 107-06-2 | 1,2-Dichloroethane | 5 | U |
| 78-93-3 | 2-Butanone | 10 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5 | U |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 108-05-4 | Vinyl Acetate | 10 | U |
| 75-27-4 | Bromodichloromethane | 5 | U |
| 78-67-5 | 1,2-Dichloropropane | 5 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 5 | U |
| 79-01-6 | Trichloroethene | 5 | U |
| 124-48-1 | Dibromochloromethane | 5 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 5 | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 5 | U |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 10 | U |
| 591-78-6 | 2-Hexanone | 10 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 | U |
| 108-88-3 | Toluene | 5 | U |
| 108-90-7 | Chlorobenzene | 5 | U |
| 100-41-4 | Ethylbenzene | 5 | U |
| 100-42-5 | Styrene | 5 | U |
| 1330-20-7 | Xylene (total) | 5 | U |

0129

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

4K040

City: OK-TULSA

Contract: 5511HQ10

Case: SNOK

Case No.: 14772

SAS No.: 5511Q

SDG No.: PKC21

1. (soil/water) WATER

Lab Sample ID: 75491

2. wt/vol:

5.0 (g/mL) ML

Lab File ID: CD677

3. (low/med) LOW

Date Received: 08/25/90

4. Nature: not dec.

Date Analyzed: 08/30/90

5. (pack/cap) CAP

Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

6. TICs found: 0

| 7. NUMBER | COMPOUND NAME | RT | EST. CONC. | 8 |
|-----------|---------------|----|------------|---|
| | | | | |

0130

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042

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

+041

Contract: 75114011

Site: 98-TULSA

Case No.: 14775

SAB No.: 25115

SDG No.: 44001

Sample: DRINK

In: (soil/water) WATER

Lab Sample ID: 754912

No. ml/vol:

5.0 g/mL: ML

Lab File ID: 00402

Flow: (low/med) LOW

Date Received: 08/25/90

Material: not dec.

Date Analyzed: 09/20/90

Unit: (pack/cap) CAP

Dilution Factor: 1.0

CAS NO.

COMPOUND

CONCENTRATION UNITS:

(ug/L or ug/g) ug/L

3

| | | | |
|------------|----------------------------|----|----|
| 74-87-3 | Chloromethane | 10 | 10 |
| 74-83-9 | Bromomethane | 10 | 10 |
| 75-01-4 | Vinyl Chloride | 10 | 10 |
| 75-00-3 | Chloroethane | 10 | 10 |
| 75-09-2 | Methylene Chloride | 10 | 10 |
| 67-64-1 | Acetone | 10 | 10 |
| 75-15-0 | Carbon Disulfide | 10 | 10 |
| 75-35-4 | 1,1-Dichloroethene | 10 | 10 |
| 75-34-3 | 1,1-Dichloroethane | 10 | 10 |
| 124-59-0 | 1,2-Dichloroethene (total) | 10 | 10 |
| 67-66-3 | Chloroform | 10 | 10 |
| 107-06-2 | 1,2-Dichloroethane | 10 | 10 |
| 78-93-3 | 2-Butanone | 10 | 10 |
| 71-55-6 | 1,1,1-Trichloroethane | 10 | 10 |
| 54-23-5 | Carbon Tetrachloride | 10 | 10 |
| 106-05-4 | Vinyl Acetate | 10 | 10 |
| 75-27-4 | Bromodichloromethane | 10 | 10 |
| 78-87-5 | 1,2-Dichloropropane | 10 | 10 |
| 10061-01-5 | cis-1,3-Dichloropropene | 10 | 10 |
| 79-01-6 | Trichloroethene | 10 | 10 |
| 124-48-1 | Dibromochloromethane | 10 | 10 |
| 79-00-5 | 1,1,2-Trichloroethane | 10 | 10 |
| 71-43-2 | Benzene | 10 | 10 |
| 10061-02-6 | trans-1,3-Dichloropropene | 10 | 10 |
| 75-25-2 | Bromoform | 10 | 10 |
| 108-10-1 | 4-Methyl-2-Pentanone | 10 | 10 |
| 591-78-6 | 3-Hexanone | 10 | 10 |
| 127-18-4 | Tetrachloroethene | 10 | 10 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 10 | 10 |
| 108-88-7 | Toluene | 10 | 10 |
| 108-90-7 | Chlorobenzene | 10 | 10 |
| 100-41-4 | Ethylbenzene | 10 | 10 |
| 100-42-5 | Styrene | 10 | 10 |
| 1330-20-7 | xylene (total) | 10 | 10 |

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SP4 SAMPLE ID: _____

4041

Contract: 85114010

TULSA

Case No.: 14778

SAS NO.: 85112

SDG NO.: 14778

WATER

Lab Sample ID: 754912

5.0

g/mL / mL

Lab File ID: 10673

LOW

Date Received: 08/25/90

Date Analyzed: 09/28/90

Dilution Factor: 1.0

CAP

CONCENTRATION UNITS:

(ug/L or ug/kg) UG/L

TICS found: 0

COMPOUND NUMBER

COMPOUND NAME

RT

EST. CONC.

0

0135

VOLATILE ORGANICS ANALYSIS DATA SHEET

Sample: SM -TULSA Contract: 5511-001
 Case No.: 14771 SAS No.: 55110 SDG No.: 14771
 Sample: SMOK
 Substrate: SOIL Lab Sample ID: 14771
 In g/vol: 5 g/mL 5 Lab File ID: 14771
 In (low/med) LOW Date Rec'd: 12/1/80
 Material: not dec. IS Date Analyzed: 12/1/80
 Unit: (pack/cap) CAP Dilution Factor: 1

CONCENTRATION UNITS:
 µg/L or (µg/g) (µg/kg) 0

| CAS NO. | COMPOUND | | |
|--------------|----------------------------|----|---|
| 1-74-87-3 | Chloromethane | 10 | 1 |
| 1-74-83-0 | Bromomethane | 10 | 1 |
| 1-75-01-4 | Vinyl Chloride | 10 | 1 |
| 1-72-00-3 | Chloroethane | 10 | 1 |
| 1-75-09-2 | Methylene Chloride | 10 | 1 |
| 1-67-64-1 | Acetone | 10 | 1 |
| 1-75-15-0 | Carbon Disulfide | 10 | 1 |
| 1-75-35-4 | 1,1-Dichloroethene | 10 | 1 |
| 1-75-34-3 | 1,1-Dichloroethane | 10 | 1 |
| 1-540-59-0 | 1,2-Dichloroethene (total) | 10 | 1 |
| 1-67-66-3 | Chloroform | 10 | 1 |
| 1-107-06-2 | 1,2-Dichloroethane | 10 | 1 |
| 1-78-93-3 | 2-Butanone | 10 | 1 |
| 1-571-55-6 | 1,1,1-Trichloroethane | 10 | 1 |
| 1-54-23-5 | Carbon Tetrachloride | 10 | 1 |
| 1-108-05-4 | Vinyl Acetate | 10 | 1 |
| 1-75-27-4 | Bromodichloromethane | 10 | 1 |
| 1-78-87-5 | 1,2-Dichloropropane | 10 | 1 |
| 1-10061-01-5 | cis-1,2-Dichloropropene | 10 | 1 |
| 1-77-01-6 | Trichloroethene | 10 | 1 |
| 1-124-48-1 | Dibromochloromethane | 10 | 1 |
| 1-77-00-5 | 1,1,2-Trichloroethane | 10 | 1 |
| 1-71-43-2 | Benzene | 10 | 1 |
| 1-10061-02-5 | trans-1,2-Dichloropropene | 10 | 1 |
| 1-75-25-2 | Bromoform | 10 | 1 |
| 1-108-10-1 | 4-Methyl-2-Pentanone | 10 | 1 |
| 1-591-78-6 | 2-Hexanone | 10 | 1 |
| 1-127-18-4 | Tetrachloroethene | 10 | 1 |
| 1-77-34-5 | 1,1,1,2-Tetrachloroethane | 10 | 1 |
| 1-108-88-7 | Toluene | 10 | 1 |
| 1-108-90-7 | Chlorobenzene | 10 | 1 |
| 1-100-41-4 | Bromobenzene | 10 | 1 |
| 1-100-42-5 | Styrene | 10 | 1 |
| 1-1330-20-7 | Ethylene (total) | 10 | 1 |

VOLATILE ORGANIC ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Case: 24-TULSA Laboratory: USEPA
 Case: 240K Date Recd.: 10/11/81 Date Recd.: 10/11/81
 Mat. (soil/water): SOIL Lab. Sample ID: 240K-1
 Vol.: 1.0 g./mL. 1.0 Lab. File #: 240K-1
 Dil. (low/med): LOW Date Received: 10/11/81
 Material not dec. DE Date Analyzed: 10/11/81
 (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS:
μg/L or ng/mL (USEPA)

for TICs found: 0

| CAS NUMBER | COMPOUND NAME | RT | DET. CONC. |
|------------|---------------|-------|------------|
| ===== | ===== | ===== | ===== |

VOLATILE ORGANICS ANALYSIS DATA SHEET

SP# 14441

Contract: 3511-001

W-001

Job: 35 - TULSA

Case No.: 14770

SAS No.: 35110

BDG No.: 1-001

Code: 300

Mat: (soil/water) WATER

Lab Sample ID: 01494

Mo wt/vol: 5.0 g/mL

Lab File ID: 10675

Flow (low/med) LOW

Date Received: 8/23/90

Mixture: not dec.

Date Analyzed: 8/27/90

Unit: (pack/cap) CAP

Dilution Factor: 1.0

CONCENTRATION UNITS:

(ug/L or ug/kg) UG/L

CAS NO.

COMPOUND

0

| | | |
|------------|----------------------------|----|
| 74-87-3 | Chloromethane | 10 |
| 74-83-9 | Bromomethane | 10 |
| 78-01-4 | Vinyl Chloride | 10 |
| 75-00-3 | Chloroethane | 10 |
| 75-09-2 | Methylene Chloride | 10 |
| 67-64-1 | Acetone | 10 |
| 75-15-0 | Carbon Disulfide | 10 |
| 75-35-4 | 1,1-Dichloroethene | 10 |
| 75-34-3 | 1,1-Dichloroethane | 10 |
| 840-59-0 | 1,2-Dichloroethene (total) | 10 |
| 75-67-6 | Chloroform | 10 |
| 107-06-2 | 1,2-Dichloroethane | 10 |
| 75-93-3 | 2-Butanone | 10 |
| 71-55-6 | 1,1,1-Trichloroethane | 10 |
| 54-23-5 | Carbon Tetrachloride | 10 |
| 100-05-4 | Vinyl Acetate | 10 |
| 75-27-4 | Bromodichloromethane | 10 |
| 75-87-5 | 1,2-Dichloropropane | 10 |
| 10061-01-5 | cis-1,2-Dichloropropene | 10 |
| 79-01-6 | Trichloroethene | 10 |
| 124-48-1 | Dibromochloromethane | 10 |
| 79-00-5 | 1,1,2-Trichloroethane | 10 |
| 71-43-2 | Benzene | 10 |
| 10061-02-6 | trans-1,2-Dichloropropene | 10 |
| 75-25-2 | Bromoform | 10 |
| 108-10-1 | 4-Methyl-2-Pentanone | 10 |
| 591-78-6 | 2-Hexanone | 10 |
| 127-18-4 | Tetrachloroethene | 10 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 10 |
| 108-88-7 | Toluene | 10 |
| 106-90-7 | Chlorobenzene | 10 |
| 100-41-4 | Ethylbenzene | 10 |
| 100-42-5 | Styrene | 10 |
| 1330-20-7 | Xylene (total) | 10 |

0149

18
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE #

4447

TULSA

Contract: 5511-010

Case No.: 14772

SAS No.: 55112

EDG No.: 1-021

SW

Mat (soil/water) WATER

Lab Sample ID: 154914

is w/vol:

5.0

g/mL, mL

Lab File ID: 12877

is (low/med)

LOW

Date Received: 08/03/90

is not dec.

Date Analyzed: 08/17/90

is (pack/cap)

CAP

Dilution Factor: 1.0

TICs found: 0

CONCENTRATION UNITS:

ug/L or ug/g or ug/L

COMPOUND NUMBER

COMPOUND NAME

AT

EST. CONC.

1A VOLATILE ORGANICS ANALYSIS DATA SHEET

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TULSA

Contract: 55114010

Case No.: 14770

SAS No.: 55110

SDG No.: 1000000

OK

Lab Sample ID: 154915

oil/water) SOIL

Lab File ID: 11647

Vol:

5.0 g/mL) B

Date Received: 10/15/90

Flow/med) LOW

Date Analyzed: 10/15/90

Not dec. 15

Dilution Factor: 1.0

pack/cap) CAP

CONCENTRATION UNITS:
ug/L or ug/kg) ug/L

CAS NO.

COMPOUND

| CAS NO. | COMPOUND | ug/L | ug/kg |
|------------|----------------------------|------|-------|
| 74-87-3 | Chloromethane | 100 | 1 |
| 74-83-9 | Bromomethane | 100 | 1 |
| 75-01-4 | Vinyl Chloride | 100 | 1 |
| 75-00-3 | Chloroethane | 100 | 1 |
| 75-09-2 | Methylene Chloride | 100 | 1 |
| 75-64-1 | Acetone | 100 | 1 |
| 75-15-0 | Carbon Disulfide | 100 | 1 |
| 75-35-4 | 1,1-Dichloroethene | 100 | 1 |
| 75-34-3 | 1,1-Dichloroethane | 100 | 1 |
| 75-59-0 | 1,2-Dichloroethene (total) | 100 | 1 |
| 75-66-3 | Chloroform | 100 | 1 |
| 107-06-2 | 1,2-Dichloroethane | 100 | 1 |
| 78-93-3 | 2-Butanone | 100 | 1 |
| 71-55-6 | 1,1,1-Trichloroethane | 100 | 1 |
| 56-23-5 | Carbon Tetrachloride | 100 | 1 |
| 108-05-4 | Vinyl Acetate | 100 | 1 |
| 75-27-4 | Bromodichloromethane | 100 | 1 |
| 78-87-5 | 1,2-Dichloropropane | 100 | 1 |
| 10061-01-5 | cis-1,3-Dichloropropene | 100 | 1 |
| 79-01-6 | Trichloroethene | 100 | 1 |
| 124-48-1 | Dibromochloromethane | 100 | 1 |
| 79-00-5 | 1,1,1-Trichloroethane | 100 | 1 |
| 71-43-2 | Benzene | 100 | 1 |
| 10061-02-6 | trans-1,2-Dichloropropene | 100 | 1 |
| 75-25-3 | Bromoform | 100 | 1 |
| 108-10-1 | 4-Methyl-2-Pentanone | 100 | 1 |
| 591-78-6 | 1-Hexanone | 100 | 1 |
| 127-18-4 | Tetrachloroethene | 100 | 1 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 100 | 1 |
| 108-88-7 | Toluene | 100 | 1 |
| 108-90-7 | Chlorobenzene | 100 | 1 |
| 100-41-4 | Ethylbenzene | 100 | 1 |
| 100-42-5 | Styrene | 100 | 1 |
| 1330-20-7 | Xylene (total) | 100 | 1 |

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15
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CPA SAMPLE 1.

Contract: 5511H010

LABORATORY - TULSA

Case No.: 14772

SAS No.: 551101

SDG No.: 14621

Container: BUCK

Lab Sample ID: 151015

Matrix: Soil/water: SOIL

Lab File ID: 14645

Conc. (ug/L): 5.0 g/mL: 5

Date Received: 08/05/90

Exposure: (low/med) LOW

Date Analyzed: 09/01/90

Temperature: not dec. 15

Dilution Factor: 1.0

Location: (back/cap) CAP

CONCENTRATION UNITS:
(ug/L or ug/g) UG/L

YTCs found: 0

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. |
|------------|---------------|-------|------------|
| ===== | ===== | ===== | ===== |
| ===== | ===== | ===== | ===== |

Soil LCL

13
SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWL-TULSA

Contract: 551101

FILE

SWOL

Case No.: 14772

SAS No.: 55110

SDG No.: 4-021

oil/water: WATER

Lab Sample ID: 155711

Vol: 1000 g/mL / ML

Lab File ID: FA000

(low/med) LOW

Date Received: 08/27/90

not dec. dec.

Date Extracted: 08/28/90

(SepF/Cont/Sonc) CONT

Date Analyzed: 09/13/90

sp: (Y/N) N pH: 5.9

Dilution Factor: 1.0

CONCENTRATION UNITS:
mg/L or ug/L ug/L 2

| NO. | COMPOUND | | |
|------|-----------------------------|----|---|
| 95-2 | Phenol | 10 | U |
| 44-4 | bis(2-Chloroethoxy)Ether | 10 | U |
| 57-8 | 2-Chlorophenol | 10 | U |
| 73-1 | 1,3-Dichlorobenzene | 10 | U |
| 46-7 | 1,4-Dichlorobenzene | 10 | U |
| 51-6 | Benzyl Alcohol | 10 | U |
| 50-1 | 1,2-Dichlorobenzene | 10 | U |
| 48-7 | 2-Methylanisole | 10 | U |
| 60-1 | bis(2-Chloroisopropyl)Ether | 10 | U |
| 44-5 | 4-Methylanisole | 10 | U |
| 64-7 | N-Nitroso-Di-n-Propylamine | 10 | U |
| 72-1 | Hexachloroethane | 10 | U |
| 95-3 | Nitrobenzene | 10 | U |
| 59-1 | Isononone | 10 | U |
| 75-5 | 2-Nitrophenol | 10 | U |
| 67-9 | 2,4-Dimethylanisole | 10 | U |
| 65-0 | Benzoic Acid | 50 | U |
| 91-1 | bis(2-Chloroethoxy)Methane | 10 | U |
| 83-2 | 2,4-Dichlorophenol | 10 | U |
| 62-1 | 1,2,4-Trichlorobenzene | 10 | U |
| 40-3 | Naphthalene | 10 | U |
| 47-8 | 4-Chloroaniline | 10 | U |
| 58-3 | Hexachlorobutadiene | 10 | U |
| 50-7 | 4-Chloro-3-Methylanisole | 10 | U |
| 57-6 | 2-Methylnaphthalene | 10 | U |
| 57-4 | Hexachlorocyclopentadiene | 10 | U |
| 76-2 | 2,4,6-Trichlorophenol | 10 | U |
| 75-4 | 2,4,5-Trichlorophenol | 50 | U |
| 58-7 | 2-Chloronaphthalene | 10 | U |
| 44-4 | 2-Nitroaniline | 50 | U |
| 41-3 | Dimethyl Phthalate | 10 | U |
| 76-6 | Acenaphthylene | 10 | U |
| 20-2 | 2,6-Dinitrotoluene | 10 | U |

0351

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ENVIL-TULSA

Contract: 5514010

0018

SNOK

Case No.: 14778

SAS No.: 55110

SDG No.: 14001

oil/water: WATER

Lab Sample ID: 155101

Vol: 1000 (g/mL) mL

Lab File ID: FA000

(low/med) LOW

Date Received: 8/27/80

not dec. dec.

Date Extracted: 09/30/80

(Sep/Cont/Sonc) CONT

Date Analyzed: 9/18/80

Temp: (Y/N) N pH: 5.2

Dilution Factor: 1.0

NO.

COMPOUND

CONCENTRATION UNITS:

(ug/L or ug/kg) UG/L

g

| | | | |
|-------------|----------------------------|-----|----|
| 109-2 | 3-Nitroaniline | 50 | U |
| 132-9 | Acenaphthene | 10 | U |
| 128-5 | 2,4-Dinitrophenol | 50 | U |
| 102-7 | 4-Nitrophenol | 50 | U |
| 164-9 | Dibenzofuran | 10 | U |
| 114-2 | 2,4-Dinitrotoluene | 10 | U |
| 166-2 | Diethylphthalate | 10 | U |
| 175-72-3 | 4-Chlorophenyl-phenylether | 10 | U |
| 173-7 | Fluorene | 10 | U |
| 1701-6 | 4-Nitroaniline | 50 | U |
| 1752-1 | 4,6-Dinitro-2-Methylphenol | 50 | U |
| 1730-6 | N-Nitrosodiphenylamine (1) | 10 | U |
| 17155-3 | 4-Bromophenyl-phenylether | 10 | U |
| 17174-1 | Hexachlorobenzene | 10 | U |
| 17186-5 | Pentachlorophenol | 50 | U |
| 17201-8 | Phenanthrene | 10 | U |
| 17212-7 | Anthracene | 10 | U |
| 17274-2 | Di-n-Butylphthalate | 0.8 | BJ |
| 17274-4-0 | Fluoranthene | 10 | U |
| 17274-00-0 | Pyrene | 10 | U |
| 172768-7 | Butylbenzylphthalate | 10 | U |
| 172794-1 | 3,3'-Dichlorobenzidine | 20 | U |
| 172795-3 | Benzo(a)Anthracene | 10 | U |
| 172795-01-9 | Chrysene | 10 | U |
| 172795-81-7 | bis(2-Ethylhexyl)Phthalate | 0 | BJ |
| 172795-84-0 | Di-n-Octyl Phthalate | 10 | U |
| 172795-99-2 | Benzo(b)Fluoranthene | 10 | U |
| 172795-08-9 | Benzo(k)Fluoranthene | 10 | U |
| 172795-32-8 | Benzo(a)Pyrene | 10 | U |
| 172795-39-5 | Indeno(1,2,3-cd)Pyrene | 10 | U |
| 172795-70-3 | Dibenz(a,h)Anthracene | 10 | U |
| 172795-24-2 | Benzo(g,h,i)Perylene | 10 | U |

Cannot be separated from Diphenylamine

0352

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SEA SAMPLE NO.

ENL-TULSA

Contract: 5511-010

9018

SNOW

Case No.: 14777

SEA No.: 5511-010

EDG

ALL - COI

Soil/Water: WATER

Lab Sample ID: 15511-010

Vol: 1000 g/mL 1L

Lab File ID: 5511-010

(low/med) LOW

Date Received: 3/27/90

not dec. dec.

Date Extracted: 3/29/90

(Sep/Cont/Conc) CONT

Date Analyzed: 3/29/90

Temp: (Y/N) N pH: 5.9

Dilution Factor: 1.0

mg found: 1

CONCENTRATION UNITS:
µg/L or mg/L or µg/g

| NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|--------|------------------|-------|------------|---|
| 1 | UNKNOWN COMPOUND | 15.15 | 4.013 | |

0353

18
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SPA SAMPLE NO.

ML-TULSA

Contract: 3314010

1115

SNOK

Case No.: 1470

SAS No.: 3314

SDS 1.: 4001

oil/water: WATER

Lab Sample ID: 13300

Vol: 1000 (g/mL) ML

Lab File ID: 30004

Flow/med: DW

Date Received: 3/27/90

not dec. dec.

Date Extracted: 3/29/90

(SepF/Cont/Sonc) CONT

Date Analyzed: 3/29/90

sp: (Y/N) N pH: 5.8

Dilution Factor: 1.0

NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/g) (ug/L)

Q

| | | | |
|--------|------------------------------|----|---|
| 1495-2 | Phenol | 10 | U |
| 1444-4 | bis(2-Chloroethyl) Ether | 10 | U |
| 1457-6 | 2-Chlorophenol | 10 | U |
| 1473-1 | 1,3-Dichlorobenzene | 10 | U |
| 1446-7 | 1,4-Dichlorobenzene | 10 | U |
| 1451-6 | Benzyl Alcohol | 10 | U |
| 1450-1 | 1,2-Dichlorobenzene | 10 | U |
| 1448-7 | 2-Methylnphenol | 10 | U |
| 1460-1 | bis(2-Chloroisopropyl) Ether | 10 | U |
| 1444-5 | 4-Methylnphenol | 10 | U |
| 1464-7 | N-Nitroso-Di-n-Propylamine | 10 | U |
| 1472-1 | Hexachloroethane | 10 | U |
| 1495-3 | Nitrobenzene | 10 | U |
| 1467-1 | Isophorone | 10 | U |
| 1475-5 | 2-Nitrophenol | 10 | U |
| 1467-9 | 2,4-Dimethylnphenol | 10 | U |
| 1485-0 | Benzoic Acid | 50 | U |
| 1491-1 | bis(2-Chloroethoxy) Methane | 10 | U |
| 1483-2 | 2,4-Dichlorophenol | 10 | U |
| 1482-1 | 1,2,4-Trichlorobenzene | 10 | U |
| 1420-3 | Napthalene | 10 | U |
| 1447-8 | 4-Chloroaniline | 10 | U |
| 1448-3 | Hexachlorobutadiene | 10 | U |
| 1450-7 | 4-Chloro-3-Methylnphenol | 10 | U |
| 1457-6 | 2-Methylnapthalene | 10 | U |
| 1447-4 | Hexachlorocyclopentadiene | 10 | U |
| 1406-2 | 2,4,6-Trichlorophenol | 10 | U |
| 1455-4 | 1,4,6-Trichlorophenol | 50 | U |
| 1458-7 | 2-Chloronapthalene | 10 | U |
| 1474-4 | 2-Nitroaniline | 50 | U |
| 1411-3 | Dimethyl Phthalate | 10 | U |
| 1496-8 | Acenaphthylene | 10 | U |
| 1420-2 | 2,6-Dinitrotoluene | 10 | U |

0361

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL-TULSA

Contract: 95114010

0010

SMOK

Date No.: 14772

SAS No.: 95110

SDG No.: 40021

Soil/Water: WATER

Lab Sample ID: 95000

Vol: 1000 g/mL ML

Lab File ID: 95004

Flow/med: LOW

Date Received: 08/27/90

not dec. dec.

Date Extracted: 09/20/90

(SepH/Cont/Sonc): CONT

Date Analyzed: 9/19/90

Y/N) N

pH: 5.8

Dilution Factor: 1.0

CONCENTRATION UNITS:

(ug/L or ug/kg) ug/L

CG NO.

COMPOUND

Q

| | | | |
|-------|----------------------------|----|----|
| 009-2 | 3-Nitroaniline | 50 | U |
| 012-9 | Acenaphthene | 10 | U |
| 018-5 | 2,4-Dinitrophenol | 50 | U |
| 002-7 | 4-Nitrophenol | 50 | U |
| 064-9 | Dibenzofuran | 10 | U |
| 014-2 | 2,4-Dinitrotoluene | 10 | U |
| 064-2 | Diethylthalate | 10 | U |
| 072-3 | 4-Chlorobenzyl-benzylether | 10 | U |
| 073-7 | Fluorene | 10 | U |
| 001-6 | 4-Nitroaniline | 50 | U |
| 052-1 | 4,6-Dinitro-2-Methylphenol | 50 | U |
| 030-6 | N-Nitrosodiphenylamine (1) | 10 | U |
| 055-3 | 4-Bromobenzyl-benzylether | 10 | U |
| 074-1 | Hexachlorobenzene | 10 | U |
| 086-5 | Pentachlorophenol | 50 | U |
| 001-8 | Phenanthrene | 10 | U |
| 012-7 | Anthracene | 10 | U |
| 074-2 | Di-n-Butylthalate | 10 | U |
| 044-0 | Fluoranthene | 10 | U |
| 000-0 | Pyrene | 10 | U |
| 068-7 | Butylbenzylthalate | 10 | U |
| 094-1 | 3,3'-Dichlorobenzidine | 20 | U |
| 053-3 | Benzo(a)Anthracene | 10 | U |
| 001-9 | Chrysene | 10 | U |
| 081-7 | bis(2-Ethylhexyl)Phthalate | 5 | BO |
| 084-0 | Di-n-Octyl Phthalate | 10 | U |
| 099-2 | Benzo(b)Fluoranthene | 10 | U |
| 008-9 | Benzo(k)Fluoranthene | 10 | U |
| 012-8 | Benzo(a)Pyrene | 10 | U |
| 039-5 | Indeno(1,2,3-cd)Pyrene | 10 | U |
| 020-3 | Dibenz(a,h)Anthracene | 10 | U |
| 024-3 | Benzo(g,h,i)Perylene | 10 | U |

1) Cannot be separated from Diphenylamine

0362

SEMIVOLATILE ORGANIC ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

ENVIL-TULSA

Contract: 55114010

SNOW

Case No.: 11772

SAS G.: 55113

SDS No.: 11021

Soil/water: WATER

Lab Sample ID: 155110

Vol:

1000

µg/mL

Lab File ID: FA004

(low/med) LOW

Date Received: 09/27/90

not dec.

dec.

Date Extracted: 09/27/90

(SepF/Cont/Sond)

CONT

Date Analyzed: 09/19/90

Up:

(Y/N) N

pH:

5.8

Dilution Factor: 1.0

found: 2

CONCENTRATION UNITS:

(µg/L or ng/g or µg/g)

ORDER

COMPOUND NAME

RT

EST. CONC.

Q

UNKNOWN COMPOUND

18.19

3.010

Hexadecanoic acid (901)

18.37

3.010

ENVIL-TULSA

Contract: 0511401

SMOK

Date No.: 1/1/77

EAS No.: 02110

SDG No.: 1-001

Soil/Water: WATER

Lab Sample ID: 00000

Vol: 1000 G/M/L

Lab File ID: 00000

Flow/med: LOW

Date Received: 08/07/90

not dec. dec.

Date Extracted: 08/07/90

(Sep/Cont/Sond) CONT

Date Analyzed: 08/19/90

(Y/N) N pH: 7.0

Dilution Factor: 1

NO.

COMPOUND

CONCENTRATION UNITS:

(ug/L or mg/kg) ug/L

Q

| | | | |
|-------|-----------------------------|----|---|
| 095-2 | Phenol | 10 | U |
| 044-4 | bis(2-Chloroethyl)Ether | 10 | U |
| 057-8 | 2-Chlorophenol | 10 | U |
| 073-1 | 1,3-Dichlorobenzene | 10 | U |
| 046-7 | 1,4-Dichlorobenzene | 10 | U |
| 051-6 | Benzyl Alcohol | 10 | U |
| 050-1 | 1,2-Dichlorobenzene | 10 | U |
| 048-7 | 2-Methylanisol | 10 | U |
| 060-1 | bis(2-Chloroisopropyl)Ether | 10 | U |
| 044-5 | 4-Methylanisol | 10 | U |
| 044-7 | N-Nitroso-N-n-Propylamine | 10 | U |
| 072-1 | Hexachloroethane | 10 | U |
| 075-3 | Nitrobenzene | 10 | U |
| 079-1 | Isophorone | 10 | U |
| 075-5 | 3-Nitrophenol | 10 | U |
| 067-9 | 2,4-Dimethylanisol | 10 | U |
| 065-0 | Benzoic Acid | 50 | U |
| 091-1 | bis(2-Chloroethoxy)Methane | 10 | U |
| 083-2 | 2,4-Dichlorophenol | 10 | U |
| 062-1 | 1,2,4-Trichlorobenzene | 10 | U |
| 020-3 | Naphthalene | 10 | U |
| 047-8 | 4-Chloroaniline | 10 | U |
| 058-3 | Hexachlorobutadiene | 10 | U |
| 060-7 | 4-Chloro-3-Methylanisol | 10 | U |
| 052-6 | 2-Methylnaphthalene | 10 | U |
| 047-4 | Hexachlorocyclopentadiene | 10 | U |
| 066-2 | 2,4,6-Trichlorophenol | 10 | U |
| 095-4 | 2,4,6-Trichlorophenol | 50 | U |
| 058-7 | 2-Chloronaphthalene | 10 | U |
| 074-4 | 2-Nitroaniline | 50 | U |
| 011-3 | Dimethyl Phthalate | 10 | U |
| 096-8 | Acenaphthylene | 10 | U |
| 020-2 | 2,6-Dinitrotoluene | 10 | U |

0371

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EWL-TULSA

Contract: 33114010

4020

EWOK

Case No.: 14772

SAS No.: 33112

SDS No.: 4001

oil/water) WATER

Lab Sample ID: 33333

Vol: 1000 ug/mL; mL

Lab File ID: 30005

Flow/med) LOW

Date Received: 08/27/90

not dec.

dec.

Date Extracted: 08/30/90

(SeoF/Cont/Sonc)

CONT

Date Analyzed: 09/12/90

(Y/N) N

pH: 7.5

Dilution Factor: 1.0

NO.

COMPOUND

CONCENTRATION UNITS:

(ug/L or ug/kg) ug/L

Q

09-2-----3-Nitroaniline

50 U

32-9-----Acenaphthene

10 U

28-5-----2,4-Dinitrophenol

50 U

02-7-----4-Nitrophenol

50 U

4-9-----Dibenzofuran

10 U

14-2-----2,4-Dinitrotoluene

10 U

6-2-----Diethylphthalate

10 U

72-3-----4-Chlorophenyl-phenylether

10 U

3-7-----Fluorene

10 U

01-6-----4-Nitroaniline

50 U

32-1-----4,6-Dinitro-2-Methylnphenol

50 U

0-6-----N-Nitrosodiphenylamine (1)

10 U

35-3-----4-Bromophenyl-phenylether

10 U

74-1-----Hexachlorobenzene

10 U

36-5-----Pentachlorophenol

50 U

01-8-----Phenanthrene

10 U

12-7-----Anthracene

10 U

24-2-----Di-n-Butylphthalate

0.4 BG

44-0-----Fluoranthene

10 U

00-0-----Pyrene

10 U

68-7-----Butylbenzylphthalate

10 U

74-1-----3,3'-Dichlorobenzidine

20 U

3-3-----Benzo(a)Anthracene

10 U

01-9-----Chrysene

10 U

01-7-----bis(2-Ethylhexyl)Phthalate

5 BG

04-0-----Di-n-Octyl Phthalate

10 U

99-2-----Benzo(b)Fluoranthene

10 U

08-9-----Benzo(k)Fluoranthene

10 U

32-8-----Benzo(a)Pyrene

10 U

39-5-----Indeno(1,2,3-cd)Pyrene

10 U

0-3-----Dibenzo(a,h)Anthracene

10 U

24-2-----Benzo(g,h,i)Perylene

10 U

Cannot be separated from Diphenylamine

0372

15
 VOLATILE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

EP4 SAMPLE 01

4001

ML-TULSA Contract: 9510401
 WOK Case No.: 14772 SAS c.: 55112 SDG NO.: 4001
 Oil/water: WATER Lab Sample ID: 955112
 Vol: 1000 g/mL, mL Lab File ID: 50005
 (low/med) LOW Date Received: 08/07/90
 not dec. dec. Date Extracted: 08/09/90
 (SepF/Cont/Sonc) CONT Date Analyzed: 08/12/90
 (Y/N) N pH: 7.2 Dilution Factor: 1.0

CONCENTRATION UNITS:

found: 1 (ug/L or ug/g or ug/g)

| ORDER | COMPOUND NAME | RT | EST. CONC. | Q |
|-------|-------------------------|-------|------------|-------|
| ===== | ===== | ===== | ===== | ===== |
| | UNKNOWN COMPOUND | 7.63 | 9.013 | |
| | UNKNOWN COMPOUND | 17.05 | 2.013 | |
| | UNKNOWN COMPOUND | 18.09 | 3.013 | |
| | Hexadecanoic acid (901) | 18.34 | 4.013 | |

0373

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWL-TULSA

Contract: 55114010

48021

SWOK

Case No.: 14775

SAS No.: 55110

SDG No.: 48021

soil/water) WATER

Lab Sample ID: 15490

Vol:

1000

ug/mL

Lab File ID: 55075

(low/med) LOW

Date Received: 08/28/90

rel: not dec.

dec.

Date Extracted: 08/28/90

ini: (SepF/Cont/Sonc)

SEPF

Date Analyzed: 09/19/90

sup:

(Y/N) N

PH:

7.4

Dilution Factor: 1.0

CS NO.

COMPOUND

CONCENTRATION UNITS:

(ug/l or ug/kg) UG/L

Q

| | | | |
|---------|-----------------------------|----|---|
| 00-95-2 | Phenol | 10 | U |
| 00-44-4 | bis(2-Chloroethyl)Ether | 10 | U |
| 00-57-8 | 2-Chlorophenol | 10 | U |
| 00-73-1 | 1,3-Dichlorobenzene | 10 | U |
| 00-46-7 | 1,4-Dichlorobenzene | 10 | U |
| 00-51-6 | Benzyl Alcohol | 10 | U |
| 00-50-1 | 1,2-Dichlorobenzene | 10 | U |
| 00-48-7 | 2-Methylphenol | 10 | U |
| 00-60-1 | bis(2-Chloroisopropyl)Ether | 10 | U |
| 00-44-5 | 4-Methylphenol | 10 | U |
| 00-64-7 | N-Nitroso-Di-n-Propylamine | 10 | U |
| 00-72-1 | Hexachloroethane | 10 | U |
| 00-95-3 | Nitrobenzene | 10 | U |
| 00-59-1 | Isophorone | 10 | U |
| 00-75-5 | 2-Nitrophenol | 10 | U |
| 00-67-9 | 2,4-Dimethylphenol | 10 | U |
| 00-85-0 | Benzoic Acid | 50 | U |
| 00-91-1 | bis(2-Chloroethoxy)Methane | 10 | U |
| 00-83-2 | 2,4-Dichlorophenol | 10 | U |
| 00-82-1 | 1,2,4-Trichlorobenzene | 10 | U |
| 00-20-3 | Naphthalene | 10 | U |
| 00-47-8 | 4-Chloroaniline | 10 | U |
| 00-68-3 | Hexachlorocyclopentadiene | 10 | U |
| 00-50-7 | 4-Chloro-3-Methylphenol | 10 | U |
| 00-57-6 | 2-Methylnaphthalene | 10 | U |
| 00-47-4 | Hexachlorocyclopentadiene | 10 | U |
| 00-06-2 | 2,4,6-Trichlorophenol | 10 | U |
| 00-95-4 | 2,4,5-Trichlorophenol | 50 | U |
| 00-58-7 | 1-Chloronaphthalene | 10 | U |
| 00-74-4 | 2-Nitroaniline | 50 | U |
| 00-11-3 | Dimethyl Phthalate | 10 | U |
| 00-96-8 | Acenaphthylene | 10 | U |
| 00-20-2 | 2,6-Dinitrotoluene | 10 | U |

064

021

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWL-TULSA Contract: 55114010
SWOH Case No.: 14770 GAS No.: 55110 SDG No.: HK001
Soil/Water: WATER Lab Sample ID: 35490
Vol: 1000 g/mL/mL Lab File ID: 29075
(low/med) LOW Date Received: 08/25/90
not dec. dec. Date Extracted: 08/28/90
S1 (SepF/Cont/Sonc) SEPF Date Analyzed: 09/19/90
Sep: (Y/N) N pH: 7.4 Dilution Factor: 1.0

NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L g

| | | | |
|------|----------------------------|----|---|
| 09-2 | 7-Nitroaniline | 50 | U |
| 32-9 | Acenaphthene | 10 | U |
| 28-5 | 2,4-Dinitrophenol | 50 | U |
| 02-7 | 4-Nitrophenol | 50 | U |
| 64-9 | Dibenzofuran | 10 | U |
| 14-2 | 2,4-Dinitrotoluene | 10 | U |
| 6-2 | Diethylphthalate | 10 | U |
| 72-3 | 4-Chlorophenyl-phenylether | 10 | U |
| 73-7 | Fluorene | 10 | U |
| 01-6 | 4-Nitroaniline | 50 | U |
| 52-1 | 4,6-Dinitro-2-Methylphenol | 50 | U |
| 30-6 | N-Nitrosodiphenylamine (1) | 10 | U |
| 55-3 | 4-Bromophenyl-phenylether | 10 | U |
| 74-1 | Hexachlorobenzene | 10 | U |
| 86-5 | Pentachlorobenzene | 50 | U |
| 01-8 | Phenanthrene | 10 | U |
| 12-7 | Anthracene | 10 | U |
| 74-2 | Di-n-Butylphthalate | 10 | U |
| 44-0 | Fluoranthene | 10 | U |
| 00-0 | Pyrene | 10 | U |
| 68-7 | Butylbenzylphthalate | 10 | U |
| 94-1 | 3,3'-Dichlorobenzidine | 20 | U |
| 5-3 | Benzo(a)Anthracene | 10 | U |
| 01-9 | Chrysene | 10 | U |
| 81-7 | bis(2-Ethylhexyl)Phthalate | 10 | U |
| 84-0 | Di-n-Octyl Phthalate | 10 | U |
| 99-2 | Benzo(b)Fluoranthene | 10 | U |
| 08-6 | Benzo(k)Fluoranthene | 10 | U |
| 32-8 | Benzo(a)Pyrene | 10 | U |
| 39-5 | Indeno(1,2,3-cd)Pyrene | 10 | U |
| 70-3 | Dibenz(a,h)Anthracene | 10 | U |
| 24-2 | Benzo(g,h,i)Perylene | 10 | U |

Cannot be separated from Diphenylamine

0386

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

+001

SMI-TULSA

Contract: 55114010

SMOK

Case No.: 14773

SAS No.: 55110

SDG No.: HK001

oil/water: WATER

Lab Sample ID: 154901

Vol: 1000 ug/mL ML

Lab File ID: 59976

Flow/med) LOW

Date Received: 9/25/90

not dec. dec.

Date Extracted: 9/29/90

(SepF/Cont/Sonc) SEPF

Date Analyzed: 9/19/90

(Y/N) N pH: 7.4

Dilution Factor: 1.0

not found: 0

CONCENTRATION UNITS:

(ug/L or ug/kg) UG/L

| NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|--------|---------------|-------|------------|-------|
| ===== | ===== | ===== | ===== | ===== |

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA FORM 816-1

SWL-TULSA

Contract: 33114011

40000

SWOK

Case No.: 14772

SAS No.: 33110

SDG No.: 11021

Soil/Water: WATER

Lab Sample ID: 334900

Vol: 1000 (g/mL) ML

Lab File ID: 33070

(low/med) LOW

Date Received: 03/25/90

not dec. dec.

Date Extracted: 08/28/90

(SepF/Cont/Sonc) SEPF

Date Analyzed: 09/19/90

Y/N) N

PH: 7.8

Dilution Factor: 1.0

NO.

COMPOUND

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

1

| | | | |
|---------|-----------------------------|----|---|
| 0-95-2 | Phenol | 10 | U |
| 1-44-4 | bis(2-Chloroethyl)Ether | 10 | U |
| 2-57-9 | 2-Chlorophenol | 10 | U |
| 3-73-1 | 1,3-Dichlorobenzene | 10 | U |
| 4-46-7 | 1,4-Dichlorobenzene | 10 | U |
| 5-51-6 | Benzyl Alcohol | 10 | U |
| 6-50-1 | 1,2-Dichlorobenzene | 10 | U |
| 7-48-7 | 2-Methylphenol | 10 | U |
| 8-60-1 | bis(2-Chloroisopropyl)Ether | 10 | U |
| 9-44-5 | 4-Methylphenol | 10 | U |
| 10-64-7 | N-Nitroso-Di-n-Propylamine | 10 | U |
| 11-72-1 | Hexachloroethane | 10 | U |
| 12-95-3 | Nitrobenzene | 10 | U |
| 13-59-1 | Isonorone | 10 | U |
| 14-75-5 | 2-Nitrophenol | 10 | U |
| 15-67-9 | 2,4-Dimethylphenol | 10 | U |
| 16-85-0 | Benzoic Acid | 50 | U |
| 17-91-1 | bis(2-Chloroethoxy)Methane | 10 | U |
| 18-83-2 | 2,4-Dichlorophenol | 10 | U |
| 19-82-1 | 1,2,4-Trichlorobenzene | 10 | U |
| 20-20-3 | Naphthalene | 10 | U |
| 21-47-8 | 4-Chloroaniline | 10 | U |
| 22-68-3 | Hexachlorobutadiene | 10 | U |
| 23-50-7 | 4-Chloro-3-Methylphenol | 10 | U |
| 24-57-6 | 2-Methylanthracene | 10 | U |
| 25-47-4 | Hexachlorocyclopentadiene | 10 | U |
| 26-06-2 | 2,4,6-Trichlorophenol | 10 | U |
| 27-95-4 | 2,4,5-Trichlorophenol | 10 | U |
| 28-58-7 | 2-Chloronaphthalene | 50 | U |
| 29-74-4 | 2-Nitroaniline | 10 | U |
| 30-11-3 | Dimethyl Phthalate | 50 | U |
| 31-96-8 | Acenaphthylene | 10 | U |
| 32-20-2 | 2,6-Dinitrotoluene | 10 | U |

10
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SPA SAMPLE NO.

SWL-TULSA Contract: 5511010
SWOK Case No.: 14770 SAS No.: 55110 SDG No.: 55021
Soil/Water: WATER Lab Sample ID: 754900
Vol: 1000 (g/mL) ML Lab File ID: 50075
(low/med) LOW Date Received: 08/25/90
not dec. dec. Date Extracted: 08/25/90
(SepF/Cont/Sonc) SEPF Date Analyzed: 09/19/90
pH: (Y/N) N pH: 7.8 Dilution Factor: 1.0

CONCENTRATION UNITS:
NO. COMPOUND (ug/L or ug/Kg) UG/L Q

| | | | |
|--------|----------------------------|-------|---|
| 09-2 | 3-Nitroaniline | 50 | U |
| 32-9 | Acenaphthene | 0.313 | |
| 28-5 | 2,4-Dinitrophenol | 50 | U |
| 0-02-7 | 4-Nitrophenol | 50 | U |
| 64-9 | Dibenzofuran | 10 | U |
| 14-2 | 2,4-Dinitrotoluene | 10 | U |
| 66-2 | Diethylphthalate | 10 | U |
| 5-72-3 | 4-Chlorophenyl-phenylether | 10 | U |
| 73-7 | Fluorene | 10 | U |
| 501-6 | 4-Nitroaniline | 50 | U |
| 52-1 | 4,6-Dinitro-2-Methylphenol | 50 | U |
| 30-6 | N-Nitrosodiphenylamine (1) | 10 | U |
| 55-3 | 4-Bromophenyl-phenylether | 10 | U |
| 74-1 | Hexachlorobenzene | 10 | U |
| 86-5 | Pentachlorophenol | 50 | U |
| 01-8 | Phenanthrene | 10 | U |
| 12-7 | Anthracene | 10 | U |
| 74-2 | Di-n-Butylphthalate | 10 | U |
| 44-0 | Fluoranthene | 10 | U |
| 00-0 | Pyrene | 0.513 | |
| 68-7 | Butylbenzylphthalate | 10 | U |
| 94-1 | 3,3'-Dichlorobenzidine | 20 | U |
| 55-3 | Benzo(a)Anthracene | 10 | U |
| 01-9 | Chrysene | 10 | U |
| 81-7 | bis(2-Ethylhexyl)Phthalate | 10 | U |
| 84-0 | Di-n-Octyl Phthalate | 10 | U |
| 99-2 | Benzo(b)Fluoranthene | 10 | U |
| 08-9 | Benzo(k)Fluoranthene | 10 | U |
| 32-8 | Benzo(a)Pyrene | 10 | U |
| 39-5 | Indeno(1,2,3-cd)Pyrene | 10 | U |
| 70-3 | Dibenz(a,h)Anthracene | 10 | U |
| 24-2 | Benzo(g,h,i)Perylene | 10 | U |

Cannot be separated from Diphenylamine

0392

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

ENVL-TULSA

Contract: 5511H010

14-000

WOK

Case No.: 14770

SAS No.: 55110

SDG No.: HK021

Oil/water) WATER

Lab Sample ID: 554902

Vol: 1000 (g/mL) ML

Lab File ID: 59979

low/med) LOW

Date Received: 08/25/90

not dec. dec.

Date Extracted: 08/29/90

(SepF/Cont/Sonc) SEPF

Date Analyzed: 09/19/90

(Y/N) N pH: 7.8

Dilution Factor: 1.0

CONCENTRATION UNITS:

found: 0

(ug/L or ug/kg) ug/L

| NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|--------|---------------|----|------------|---|
| | | | | |
| | | | | |
| | | | | |

0393

18
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWL-TULSA

Contract: 5511H010

AK022

SWOK

Case No.: 14770

SAS No.: 55110

SDG No.: AK021

oil/water: WATER

Lab Sample ID: 354907

Vol: 500 (g/mL) ML

Lab File ID: F9990

(low/med) LOW

Date Received: 08/25/90

not dec. dec.

Date Extracted: 09/09/90

(SepF/Cont/Sonc) SEPF

Date Analyzed: 09/19/90

(Y/N) N pH: 7.2

Dilution Factor: 1.0

NO.

COMPOUND

CONCENTRATION UNITS:

(ug/L or ug/kg) UG/L

Q

| | | | |
|------|-----------------------------|-----|---|
| 95-2 | Phenol | 20 | U |
| 44-4 | bis(2-Chloroethyl)Ether | 20 | U |
| 57-8 | 2-Chlorophenol | 20 | U |
| 73-1 | 1,3-Dichlorobenzene | 20 | U |
| 46-7 | 1,4-Dichlorobenzene | 20 | U |
| 51-6 | Benzyl Alcohol | 20 | U |
| 60-1 | 1,2-Dichlorobenzene | 20 | U |
| 48-7 | 2-Methylphenol | 20 | U |
| 60-1 | bis(2-Chloroisopropyl)Ether | 20 | U |
| 44-5 | 4-Methylphenol | 20 | U |
| 64-7 | N-Nitroso-Di-n-Propylamine | 20 | U |
| 72-1 | Hexachloroethane | 20 | U |
| 75-3 | Nitrobenzene | 20 | U |
| 69-1 | Isophorone | 20 | U |
| 75-5 | 2-Nitrophenol | 20 | U |
| 67-9 | 2,4-Dimethylphenol | 20 | U |
| 85-0 | Benzoic Acid | 100 | U |
| 91-1 | bis(2-Chloroethoxy)Methane | 20 | U |
| 63-2 | 2,4-Dichlorophenol | 20 | U |
| 82-1 | 1,2,4-Trichlorobenzene | 20 | U |
| 20-3 | Naphthalene | 20 | U |
| 47-8 | 4-Chloroaniline | 20 | U |
| 58-3 | Hexachlorobutadiene | 20 | U |
| 60-7 | 4-Chloro-3-Methylphenol | 20 | U |
| 57-6 | 2-Methylnaphthalene | 20 | U |
| 57-4 | Hexachlorocyclopentadiene | 20 | U |
| 66-2 | 2,4,6-Trichlorophenol | 20 | U |
| 75-4 | 2,4,5-Trichlorophenol | 100 | U |
| 58-7 | 2-Chloronaphthalene | 20 | U |
| 73-4 | 2-Nitroaniline | 100 | U |
| 41-3 | Dimethyl Phthalate | 20 | U |
| 76-8 | Acenaphthylene | 20 | U |
| 20-2 | 2,6-Dinitrotoluene | 20 | U |

0399

10
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FWL-TULSA

Contract: 5511H010

4002

SNOK

Case No.: 14772

SAS No.: 55110

SDG No.: 4002

oil/water: WATER

Lab Sample ID: 551903

Vol: 500 (g/mL) ML

Lab File ID: F0990

low/med) LOW

Date Received: 08/25/90

not dec. dec.

Date Extracted: 08/28/90

(SepF/Cont/Sonc) SEPF

Date Analyzed: 09/19/90

p: (Y/N) N

pH: 7.2

Dilution Factor: 1.0

NO.

COMPOUND

CONCENTRATION UNITS:
µg/L or µg/kg) µG/L

Q

| | | | |
|--------|------------------------------|-----|---|
| 09-2 | 3-Nitroaniline | 100 | U |
| 32-9 | Acenaphthene | 20 | U |
| 28-5 | 2,4-Dinitrophenol | 100 | U |
| 02-7 | 4-Nitrophenol | 100 | U |
| 64-9 | Dibenzofuran | 20 | U |
| 14-2 | 2,4-Dinitrotoluene | 20 | U |
| 6-2 | Diethylphthalate | 20 | U |
| 5-72-3 | 4-Chlorobenzyloxyphenylether | 20 | U |
| 73-7 | Fluorene | 20 | U |
| 01-6 | 4-Nitroaniline | 100 | U |
| 52-1 | 4,6-Dinitro-2-Methylphenol | 100 | U |
| 30-6 | N-Nitrosodiphenylamine (1) | 20 | U |
| 55-3 | 4-Bromobenzyloxyphenylether | 20 | U |
| 74-1 | Hexachlorobenzene | 20 | U |
| 86-5 | Pentachlorophenol | 100 | U |
| 01-8 | Phenanthrene | 20 | U |
| 12-7 | Anthracene | 20 | U |
| 74-2 | Di-n-Butylphthalate | 0.7 | U |
| 44-0 | Fluoranthene | 20 | U |
| 00-0 | Pyrene | 20 | U |
| 68-7 | Butylbenzylphthalate | 20 | U |
| 94-1 | 3,3'-Dichlorobenzidine | 40 | U |
| 55-3 | Benzo(a)Anthracene | 20 | U |
| 01-9 | Chrysene | 20 | U |
| 81-7 | bis(2-Ethylhexyl)Phthalate | 3 | U |
| 84-0 | Di-n-Octyl Phthalate | 20 | U |
| 99-2 | Benzo(b)Fluoranthene | 20 | U |
| 08-9 | Benzo(k)Fluoranthene | 20 | U |
| 32-8 | Benzo(a)Pyrene | 20 | U |
| 39-5 | Indeno(1,2,3-cd)Pyrene | 20 | U |
| 70-3 | Dibenz(a,h)Anthracene | 20 | U |
| 24-2 | Benzo(g,h,i)Perylene | 20 | U |

Cannot be separated from Diphenylamine

400

IF
 SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

EVL-TULSA

Contract: 5511H010

44022

SWOK

Case No.: 14772

SAS No.: 55110

SDG No.: 44021

Soil/Water: WATER

Lab Sample ID: 154903

Vol: 500 (g/mL) ML

Lab File ID: 55020

(low/med) LOW

Date Received: 08/25/90

not dec. dec.

Date Extracted: 08/28/90

(Sep/F/Cont/Sonc)

SEFF

Date Analyzed: 09/19/90

Up: (Y/N) N

pH: 7.5

Dilution Factor: 1.0

As found: 2

CONCENTRATION UNITS:

(ug/L or ug/Kg) ug/L

| NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|--------|----------------------------|-------|------------|---|
| 1 | UNKNOWN COMPOUND | 18.25 | 12 | J |
| 2 | Hexadecanoic acid (9CI) | 18.39 | 6.0 | J |
| 34500 | Sulfur, mol. (S8) (8CI9CI) | 19.19 | 12 | J |

0401

18
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWL-TULSA

Contract: 5511HQ10

48024

SWOK

Case No.: 14772

SAS No.: 55110

SDG No.: HK021

oil/water) WATER

Lab Sample ID: 155304

vol: 1000 (g/mL) ML

Lab File ID: 5A006

(low/med) LOW

Date Received: 08/27/90

not dec. dec.

Date Extracted: 08/30/90

(SepF/Cont/Sonc) CONT

Date Analyzed: 09/19/90

up: (Y/N) N pH: 7.0

Dilution Factor: 1.0

NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/kg) ug/L

| | | | |
|--------|-----------------------------|----|---|
| 5-95-1 | Phenol | 10 | U |
| 5-44-4 | bis(2-Chloroethyl)Ether | 10 | U |
| 5-57-8 | 2-Chlorophenol | 10 | U |
| 5-73-1 | 1,3-Dichlorobenzene | 10 | U |
| 5-46-7 | 1,4-Dichlorobenzene | 10 | U |
| 5-51-6 | Benzyl Alcohol | 10 | U |
| 5-50-1 | 1,2-Dichlorobenzene | 10 | U |
| 5-48-7 | 2-Methylphenol | 10 | U |
| 5-60-1 | bis(2-Chloroisopropyl)Ether | 10 | U |
| 5-44-5 | 4-Methylphenol | 10 | U |
| 5-64-7 | N-Nitroso-Di-n-Propylamine | 10 | U |
| 5-72-1 | Hexachloroethane | 10 | U |
| 5-95-3 | Nitrobenzene | 10 | U |
| 5-59-1 | Isophorone | 10 | U |
| 5-75-5 | 2-Nitrophenol | 10 | U |
| 5-67-9 | 2,4-Dimethylphenol | 10 | U |
| 5-85-0 | Benzoic Acid | 50 | U |
| 5-91-1 | bis(2-Chloroethoxy)Methane | 10 | U |
| 5-83-2 | 2,4-Dichlorophenol | 10 | U |
| 5-82-1 | 1,2,4-Trichlorobenzene | 10 | U |
| 5-20-3 | Naphthalene | 10 | U |
| 5-47-8 | 4-Chloroaniline | 10 | U |
| 5-68-3 | Hexachlorobutadiene | 10 | U |
| 5-50-7 | 4-Chloro-3-Methylphenol | 10 | U |
| 5-57-6 | 2-Methylnaphthalene | 10 | U |
| 5-47-4 | Hexachlorocyclopentadiene | 10 | U |
| 5-66-2 | 2,4,6-Trichlorophenol | 10 | U |
| 5-95-4 | 2,4,5-Trichlorophenol | 50 | U |
| 5-58-7 | 2-Chloronaphthalene | 10 | U |
| 5-74-4 | 2-Nitroaniline | 50 | U |
| 5-11-3 | Dimethyl Phthalate | 10 | U |
| 5-96-8 | Acenaphthylene | 10 | U |
| 5-20-2 | 2,6-Dinitrotoluene | 10 | U |

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WL-TULSA

Contract: 55114010

4024

SWOK

Case No.: 14772

SAS No.: 55110

SDG No.: 44021

Oil/water: WATER

Lab Sample ID: 135704

Vol: 1000 (g/mL) ML

Lab File ID: FA008

Flow/med: LOW

Date Received: 12/27/90

not dec. dec.

Date Extracted: 12/30/90

(SepF/Cont/Sonc) CONT

Date Analyzed: 12/19/90

pH: (Y/N) N pH: 7.0

Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

| NO. | COMPOUND | CONCENTRATION UNITS: | ug/L |
|------|------------------------------|----------------------|------|
| 09-2 | 3-Nitroaniline | 50 | 10 |
| 32-9 | Acenaphthene | 10 | 10 |
| 28-5 | 2,4-Dinitrophenol | 50 | 10 |
| 02-7 | 4-Nitrophenol | 50 | 10 |
| 64-9 | Dibenzofuran | 10 | 10 |
| 14-2 | 2,4-Dinitrotoluene | 10 | 10 |
| 6-2 | Diethyionthalate | 10 | 10 |
| 72-3 | 4-Chlorophenyl-phenylether | 10 | 10 |
| 73-7 | Fluorene | 10 | 10 |
| 01-6 | 4-Nitroaniline | 50 | 10 |
| 52-1 | 4,6-Dinitro-2-Methylnol | 50 | 10 |
| 30-6 | N-Nitrosodimethylaniline (1) | 10 | 10 |
| 55-3 | 4-Ethoxyphenyl-phenylether | 10 | 10 |
| 74-1 | Hexachlorobenzene | 10 | 10 |
| 84-5 | Pentachlorophenol | 50 | 10 |
| 01-8 | Phenanthrene | 10 | 10 |
| 12-7 | Anthracene | 10 | 10 |
| 74-2 | Di-n-Butylionthalate | 0.4 | 10 |
| 44-0 | Fluoranthene | 10 | 10 |
| 00-0 | Pyrene | 10 | 10 |
| 68-7 | Butylbenzylionthalate | 10 | 10 |
| 74-1 | 3,3'-Dichlorobenzidine | 20 | 10 |
| 55-3 | Benzo(a)Anthracene | 10 | 10 |
| 01-3 | Chrysene | 10 | 10 |
| 78-1 | bis(2-Ethylhexyl)Phthalate | 3 | 10 |
| 78-4 | Di-n-Octyl Phthalate | 1 | 10 |
| 99-2 | Benzo(b)Fluoranthene | 10 | 10 |
| 70-8 | Benzo(k)Fluoranthene | 10 | 10 |
| 32-8 | Benzo(a)Pyrene | 10 | 10 |
| 39-5 | Indeno(1,2,3-cd)Pyrene | 10 | 10 |
| 70-3 | Dibenz(a,h)Anthracene | 10 | 10 |
| 24-3 | Benzo(g,h,i)Perylene | 10 | 10 |

Cannot be separated from Dimethylaniline

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SWL-TULSA

Contract: 5511H010

7-1021

SWOK

Case No.: 14732

SAS No.: 55110

SDG No.: 14001

soil/water: WATER

Lab Sample ID: 155104

Vol: 1000 (g/mL) ML

Lab File ID: 54005

(low/med) LOW

Date Received: 08/27/90

not dec. dec.

Date Extracted: 08/30/90

(SepF/Cont/Sonc) CONT

Date Analyzed: 09/12/90

sup: (Y/N) N

pH: 7.0

Dilution Factor: 1.0

CONCENTRATION UNITS:

Us found: 15

(ug/L or ug/kg) ug/L

| NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|--------|------------------------------|-------|------------|---|
| | UNKNOWN COMPOUND | 4.47 | 5.013 | |
| | UNKNOWN COMPOUND | 13.99 | 2.013 | |
| 24 | PHENOL, 2,4-BIS(1,1-BIS(1,1- | 14.09 | 3.013 | |
| | UNKNOWN COMPOUND | 18.22 | 5.013 | |
| | UNKNOWN COMPOUND | 18.37 | 3.013 | |
| | UNKNOWN COMPOUND | 19.29 | 16.13 | |
| | UNKNOWN COMPOUND | 19.42 | 4.013 | |
| | UNKNOWN COMPOUND | 19.87 | 4.013 | |
| 14 | Octadecanoic acid (9CI) | 20.02 | 7.013 | |
| | UNKNOWN COMPOUND | 21.47 | 40.13 | |
| | UNKNOWN COMPOUND | 22.90 | 7.013 | |
| | UNKNOWN COMPOUND | 23.40 | 50.13 | |
| | UNKNOWN COMPOUND | 25.18 | 18.13 | |
| | UNKNOWN COMPOUND | 25.82 | 3.013 | |
| | UNKNOWN COMPOUND | 26.99 | 12.13 | |

18
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WL-PULSA

Contract: 5511HQ10

4-002

SWOH Case No.: 14772

SAS No.: 55110

SDG No.: 4-002

(soil, water) WATER

Lab Sample ID: 155205

lt/vol: 1000 (g/mL) ML

Lab File ID: 5A007

(low/med) LOW

Date Received: 18/27/90

Pre: not dec. dec.

Date Extracted: 18/30/90

on: (SepF/Cont/Sonc) CONT

Date Analyzed: 19/19/90

Temp: (Y/N) N pH: 7.2

Dilution Factor: 1.0

SAS NO.

COMPOUND

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

Q

| | | | |
|---------|-----------------------------|----|---|
| 08-95-3 | Phenol | 10 | U |
| 11-44-4 | bis(2-Chloroethyl)Ether | 10 | U |
| 15-57-8 | 2-Chlorophenol | 10 | U |
| 21-77-1 | 1,3-Dichlorobenzene | 10 | U |
| 26-46-7 | 1,4-Dichlorobenzene | 10 | U |
| 27-51-6 | Benzyl Alcohol | 10 | U |
| 30-0-1 | 1,2-Dichlorobenzene | 10 | U |
| 35-48-7 | 2-Methylphenol | 10 | U |
| 38-60-1 | bis(2-Chloroisopropyl)Ether | 10 | U |
| 46-44-5 | 4-Methylphenol | 10 | U |
| 51-64-7 | N-Nitroso-Di-n-Propylamine | 10 | U |
| 57-72-1 | Hexachloroethane | 10 | U |
| 58-95-3 | Nitrobenzene | 10 | U |
| 58-59-1 | Isophorone | 10 | U |
| 58-75-5 | 2-Nitrophenol | 10 | U |
| 65-67-9 | 2,4-Dimethylphenol | 10 | U |
| 65-85-0 | Benzoic Acid | 50 | U |
| 71-91-1 | bis(2-Chloroethoxy)Methane | 10 | U |
| 72-83-2 | 2,4-Dichlorophenol | 10 | U |
| 72-82-1 | 1,2,4-Trichlorobenzene | 10 | U |
| 71-20-3 | Napthalene | 10 | U |
| 76-47-8 | 4-Chloroaniline | 10 | U |
| 77-68-3 | Hexachlorobutadiene | 10 | U |
| 79-50-7 | 4-Chloro-3-Methylphenol | 10 | U |
| 71-57-5 | 2-Methylnapthalene | 10 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 | U |
| 78-06-2 | 2,4,6-Trichlorophenol | 10 | U |
| 73-95-4 | 2,4,5-Trichlorophenol | 50 | U |
| 71-58-7 | 2-Chloronapthalene | 10 | U |
| 78-74-4 | 2-Nitroaniline | 50 | U |
| 81-11-3 | Dimethyl Phthalate | 10 | U |
| 70-96-8 | Acenaphthylene | 10 | U |
| 70-2-2 | 2,6-Dinitrotoluene | 10 | U |

026

029

025

026

IF
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SWL-TULSA

Contract: 5514010

46015

SWOH

Case No.: 14772

SAS No.: 55110

SDG No.: H001

Soil/Water: WATER

Lab Sample ID: 555705

/vol: 1000 ug/mL ML

Lab File ID: FA007

(low/med) LOW

Date Received: 08/27/90

re: not dec. dec.

Date Extracted: 08/30/90

on: (SepF/Cont/Sonc) CONT

Date Analyzed: 09/19/90

up: (Y/N) N pH: 7.2

Dilution Factor: 1.0

CONCENTRATION UNITS:

Is found: 1 (ug/L or ug/kg) ug/L

| NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|--------|-------------------------------|-------|------------|---|
| 264 | Phenol, 2,4-bis(1,1-dimethyl) | 14.09 | 0.018J | |

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWL-TULSA

Contract: 5511HQ10

AK025

SWOK

Case No.: 14772

SAS No.: 55110

SDG No.: 4-001

soil/water: WATER

Lab Sample ID: 755105

vol: 1000 /g/mL/ ML

Lab File ID: FA007

(low/med) LOW

Date Received: 08/27/90

is: not dec. dec.

Date Extracted: 08/30/90

on: (SepF/Cont/Sonc)

CONT

Date Analyzed: 08/19/90

up: (Y/N) N

pH: 7.2

Dilution Factor: 1.0

AS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

0

| | | | |
|---------|----------------------------|----|----|
| 09-2 | 3-Nitroaniline | 50 | U |
| 32-9 | Acenaphthene | 10 | U |
| 28-5 | 2,4-Dinitrophenol | 50 | U |
| 00-02-7 | 4-Nitrophenol | 50 | U |
| 2-64-9 | Dibenzofuran | 10 | U |
| 1-14-2 | 2,4-Dinitrotoluene | 10 | U |
| 66-2 | Diethylphthalate | 10 | U |
| 05-72-3 | 4-Chlorophenyl-phenylether | 10 | U |
| 73-7 | Fluorene | 10 | U |
| 00-01-6 | 4-Nitroaniline | 50 | U |
| 4-52-1 | 4,6-Dinitro-2-Methylphenol | 50 | U |
| 30-6 | N-Nitrosodiphenylamine (1) | 10 | U |
| 01-55-3 | 4-Bromophenyl-phenylether | 10 | U |
| 18-74-1 | Hexachlorobenzene | 10 | U |
| 86-5 | Pentachlorophenol | 50 | U |
| 01-8 | Phenanthrene | 10 | U |
| 20-12-7 | Anthracene | 10 | U |
| 1-74-2 | Di-n-Butylphthalate | 10 | U |
| 06-44-0 | Fluoranthene | 10 | U |
| 29-00-0 | Pyrene | 10 | U |
| 2-68-7 | Butylbenzylphthalate | 10 | U |
| 1-94-1 | 3,3'-Dichlorobenzidine | 20 | U |
| 8-55-3 | Benzo(a)Anthracene | 10 | U |
| 28-01-9 | Chrysene | 10 | U |
| 17-81-7 | bis(2-Ethylhexyl)Phthalate | 7 | BJ |
| 17-84-0 | Di-n-Octyl Phthalate | 10 | U |
| 05-99-3 | Benzo(b)Fluoranthene | 10 | U |
| 07-08-9 | Benzo(k)Fluoranthene | 10 | U |
| 0-32-8 | Benzo(a)Pyrene | 10 | U |
| 93-39-5 | Indeno(1,2,3-cd)Pyrene | 10 | U |
| 0-70-3 | Dibenzo(a,h)Anthracene | 10 | U |
| 91-24-2 | Benzo(g,h,i)Perylene | 10 | U |

Cannot be separated from Diphenylamine

0437

18
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWL-TULSA Contract: 33114010
SWO# Date No.: 14772 GAS No.: 55112 SDS No.: 1001
(soil/water) WATER Lab Sample ID: 331404
t/vol: 1000 (g/mL) ML Lab File ID: 55551
(low/med) LOW Date Received: 08/15/90
ure: not dec. dec. Date Extracted: 08/18/90
on: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/12/90
nup: (Y/N) N pH: 7.9 Dilution Factor: 1.0

CONCENTRATION UNITS:
AS NO. COMPOUND (ug/L or ug/Kg) UG/L 0

| | | | |
|---------------|------------------------------|----|---|
| 08-95-3----- | Phenol | 10 | U |
| 11-44-4----- | bis(2-Chloroethyl) Ether | 10 | U |
| 15-57-8----- | 2-Chlorophenol | 10 | U |
| 541-73-1----- | 1,3-Dichlorobenzene | 10 | U |
| 106-46-7----- | 1,4-Dichlorobenzene | 10 | U |
| 100-51-6----- | Benzyl Alcohol | 10 | U |
| 15-50-1----- | 1,2-Dichlorobenzene | 10 | U |
| 15-48-7----- | 2-Methylphenol | 10 | U |
| 08-60-1----- | bis(2-Chloroisopropyl) Ether | 10 | U |
| 106-44-5----- | 4-Methylphenol | 10 | U |
| 121-64-7----- | N-Nitroso-Di-n-Propylamine | 10 | U |
| 17-72-1----- | Hexachloroethane | 10 | U |
| 18-95-3----- | Nitrobenzene | 10 | U |
| 18-59-1----- | Isonorone | 10 | U |
| 18-75-5----- | 2-Nitrophenol | 10 | U |
| 105-67-9----- | 2,4-Dimethylphenol | 10 | U |
| 13-85-4----- | Benzoic Acid | 50 | U |
| 111-91-1----- | bis(2-Chloroethoxy) Methane | 10 | U |
| 120-83-2----- | 2,4-Dichlorophenol | 10 | U |
| 120-92-1----- | 1,2,4-Trichlorobenzene | 10 | U |
| 11-20-3----- | Naphthalene | 10 | U |
| 106-47-8----- | 4-Chloroaniline | 10 | U |
| 17-68-7----- | Hexachlorobutadiene | 10 | U |
| 19-50-7----- | 4-Chloro-3-Methylphenol | 10 | U |
| 11-57-1----- | 2-Methylnaphthalene | 10 | U |
| 17-47-4----- | Hexachlorocyclopentadiene | 10 | U |
| 18-06-2----- | 2,4,6-Trichlorophenol | 10 | U |
| 15-95-4----- | 2,4,5-Trichlorophenol | 50 | U |
| 11-58-7----- | 2-Chloronaphthalene | 10 | U |
| 18-71-4----- | 2-Nitroaniline | 50 | U |
| 131-11-3----- | Dimethyl Phthalate | 10 | U |
| 108-95-3----- | Acenaphthylene | 10 | U |
| 106-20-2----- | 2,6-Dinitrotoluene | 10 | U |

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

TULSA

Contract: 5511HQ10

-026

SWOK Case No.: 14770 GAS No.: 55110 SDG No.: 44021

Soil/Water: WATER Lab Sample ID: T51904

Vol: 1000 (g/mL) ML Lab File ID: 55991

(low/med): LOW Date Received: 3/25/90

Is not dec. dec. Date Extracted: 3/28/90

Is (SepF/Cont/Sonc) SEPF Date Analyzed: 3/19/90

pH: 7.9 Dilution Factor: 1.0

CONCENTRATION UNITS:
NO. COMPOUND (ug/L or ug/Kg) UG/L 0

| | | | |
|---------|----------------------------|----|---|
| 09-1 | 3-Nitroaniline | 50 | U |
| 32-5 | Acenaphthene | 10 | U |
| 28-5 | 2,4-Dinitrophenol | 50 | U |
| 002-7 | 4-Nitrophenol | 50 | U |
| 2-64-9 | Dibenzofuran | 10 | U |
| 1-14-2 | 2,4-Dinitrotoluene | 10 | U |
| 1-2 | Diethylphthalate | 10 | U |
| 05-72-3 | 4-Chlorophenyl-phenylether | 10 | U |
| 5-73-7 | Fluorene | 10 | U |
| 0-01-6 | 4-Nitroaniline | 50 | U |
| 4-52-1 | 4,6-Dinitro-2-Methylphenol | 50 | U |
| 5-30-6 | N-Nitrosodiphenylamine (1) | 10 | U |
| 1-55-7 | 4-Bromophenyl-phenylether | 10 | U |
| 8-74-1 | Hexachlorobenzene | 10 | U |
| 8-6-5 | Pentachlorophenol | 10 | U |
| 5-01-9 | Phenanthrene | 10 | U |
| 0-12-7 | Anthracene | 10 | U |
| 74-2 | Di-n-Butylphthalate | 10 | U |
| 05-44-0 | Fluoranthene | 10 | U |
| 9-00-0 | Pyrene | 10 | U |
| 1-68-7 | Butylbenzylphthalate | 10 | U |
| 1-94-1 | 3,3'-Dichlorobenzidine | 10 | U |
| 5-55-7 | Benzo(a)Anthracene | 10 | U |
| 8-01-9 | Chrysene | 10 | U |
| 7-81-7 | Di(2-Ethylhexyl)Phthalate | 10 | U |
| 17-84-0 | Di-n-Octyl Phthalate | 10 | U |
| 15-99-2 | Benzo(b)Fluoranthene | 10 | U |
| 17-08-9 | Benzo(k)Fluoranthene | 10 | U |
| 0-32-8 | Benzo(a)Pyrene | 10 | U |
| 73-39-5 | Indeno(1,2,3-cd)Pyrene | 10 | U |
| 5-70-3 | Dibenz(a,h)Anthracene | 10 | U |
| 91-34-3 | Benzo(g,h,i)Perylene | 10 | U |

Cannot be separated from Diphenylamine

U4

026 036

040 029

031

032

033 026

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

--008

Site: BWL-TULSA Contract: 5511P010
 ID: BWOK Case No.: 14772 SAS No.: 55110 EOG No.: PK001
 (soil, water) WATER Lab Sample ID: 354904
 wt/vol: 1000 (g/mL) ML Lab File ID: 55551
 (low/med) LOW Date Received: 08/25/90
 Pre: not dec. dec. Date Extracted: 08/28/90
 Ion: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/12/90
 Dup: (Y/N) N pH: 7.9 Dilution Factor: 1.0

ICS found: 0 CONCENTRATION UNITS:
(ug/L or ug/kg) ug/L

| NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|--------|---------------|-------|------------|-------|
| ===== | ===== | ===== | ===== | ===== |
| | | | | |

0447

18
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE

SWL-TULSA

Contract: 55114010

HK028

SWOF

Case No.: 14772

SAS No.: 55110

SDG No.: HK021

(soil/water) WATER

Lab Sample ID: 134905

t/vol: 1000 (g/mL) mL

Lab File ID: 55080

(low/med) LOW

Date Received: 09/25/90

ure: not dec. dec.

Date Extracted: 09/28/90

don: (SepF/Cont/Sonc) SEFF

Date Analyzed: 09/19/90

wnup: (Y/N) N pH: 7.8

Dilution Factor: 1.0

CAS NO.

COMPOUND

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

Q

| | | | |
|----------|-----------------------------|----|---|
| 108-95-2 | Phenol | | |
| 111-44-4 | bis(2-Chloroethyl)Ether | 10 | U |
| 95-57-8 | 2-Chlorophenol | 10 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 | U |
| 100-51-6 | Benzyl Alcohol | 10 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 | U |
| 95-48-7 | 2-Methylphenol | 10 | U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 | U |
| 106-44-5 | 4-Methylphenol | 10 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 10 | U |
| 67-72-1 | Hexachloroethane | 10 | U |
| 78-95-3 | Nitrobenzene | 10 | U |
| 78-59-1 | Isophorone | 10 | U |
| 88-75-5 | 2-Nitrophenol | 10 | U |
| 105-67-9 | 2,4-Dimethylphenol | 10 | U |
| 45-85-0 | Benzoic Acid | 10 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 50 | U |
| 120-83-3 | 2,4-Dichlorophenol | 10 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 10 | U |
| 91-20-3 | Napthalene | 10 | U |
| 106-47-8 | 4-Chloroaniline | 10 | U |
| 87-68-3 | Hexachlorobutadiene | 10 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 10 | U |
| 91-57-6 | 2-Methylnapthalene | 10 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 10 | U |
| 91-58-7 | 2-Chloronapthalene | 50 | U |
| 88-74-4 | 2-Nitroaniline | 10 | U |
| 131-11-3 | Dimethyl Phthalate | 50 | U |
| 208-90-5 | Acenaphthylene | 10 | U |
| 506-20-2 | 2,6-Dinitrotoluene | 10 | U |
| | | 10 | U |

10
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

--029

SWL-TULSA Contract: 5511H010
SWOW Case No.: 14772 SAS No.: 55110 SDG No.: H0021
(soil, water) WATER Lab Sample ID: 554905
t/vol: 1000 (g/mL) mL Lab File ID: 55552
(low/med) LOW Date Received: 12/05/90
re: not dec. dec. Date Extracted: 12/08/90
on: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/19/90
dup: (Y/N) N pH: 7.8 Dilution Factor: 1.0

AS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

| | | | |
|----------|----------------------------|-------|---|
| 9-09-2 | 3-Nitroaniline | 50 | U |
| 3-32-9 | Acenaphthene | 10 | U |
| 01-28-5 | 2,4-Dinitrophenol | 50 | U |
| 00-02-7 | 4-Nitrophenol | 50 | U |
| 02-64-2 | Dibenzofuran | 10 | U |
| 21-14-2 | 2,4-Dinitrotoluene | 10 | U |
| 4-66-2 | Diethylphthalate | 10 | U |
| 005-72-3 | 4-Chlorophenyl-phenylether | 10 | U |
| 6-73-7 | Fluorene | 10 | U |
| 00-01-6 | 4-Nitroaniline | 50 | U |
| 34-52-1 | 4,6-Dinitro-2-Methylphenol | 50 | U |
| 6-30-6 | N-Nitrosodichenvlamine (1) | 10 | U |
| 01-55-3 | 4-Bromophenyl-phenylether | 10 | U |
| 18-74-1 | Hexachlorobenzene | 10 | U |
| 07-86-5 | Pentachlorophenol | 50 | U |
| 5-01-8 | Phenanthrene | 10 | U |
| 20-12-7 | Anthracene | 10 | U |
| 4-74-2 | Di-n-Butylphthalate | 0.213 | |
| 06-44-0 | Fluoranthene | 10 | U |
| 29-00-0 | Pyrene | 10 | U |
| 5-68-7 | Butylbenzylphthalate | 10 | U |
| 01-94-1 | 3,3'-Dichlorobenzidine | 20 | U |
| 3-55-3 | Benzo(a)Anthracene | 10 | U |
| 18-01-9 | Chrysene | 10 | U |
| 17-81-7 | bis(2-Ethylhexyl)Phthalate | 10 | U |
| 17-84-0 | Di-n-Octyl Phthalate | 10 | U |
| 05-99-2 | Benzo(b)Fluoranthene | 10 | U |
| 07-08-9 | Benzo(k)Fluoranthene | 10 | U |
| 0-32-8 | Benzo(a)Pyrene | 10 | U |
| 93-39-5 | Indeno(1,2,3-cd)Pyrene | 10 | U |
| 3-70-3 | Dibenz(a,h)Anthracene | 10 | U |
| 01-24-2 | Benzo(g,h,i)Perylene | 10 | U |

- Cannot be separated from Dichenvlamine

029

051

052

053

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

PROJECT

SWL-TULSA Contract: 5511HQ1
SWOK Case No.: 14772 SAS No.: 55110 EDG No.: 44021
(soil/water) WATER Lab Sample ID: 554905
wt/vol: 1000 (g/mL) ML Lab File ID: 55932
(low/med) LOW Date Received: 08/25/90
Pre: not dec. dec. Date Extracted: 08/29/90
Con: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/12/90
Inup: (Y/N) N pH: 7.8 Dilution Factor: 1.0

ICS found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

| NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|--------|---------------|-------|------------|-------|
| ===== | ===== | ===== | ===== | ===== |
| | | | | |

18
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWL-TULSA Contract: 55110010 HK020
SWOH Case No.: 14772 SAS No.: 55110 SDG No.: 4001
(soil/water) WATER Lab Sample ID: 754905
t/vol: 930 (g/mL) ML Lab File ID: FA044
(low/med) LOW Date Received: 08/25/90
ure: not dec. dec. Date Extracted: 09/19/90
on: (SepF/Cont/Sonc) SEFF Date Analyzed: 09/21/90
anup: (Y/N) N pH: 7.7 Dilution Factor: 1.0

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/kg) UG/L Q

| | | | |
|----------|-----------------------------|----|---|
| 108-95-2 | Phenol | 11 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 11 | U |
| 95-57-8 | 2-Chlorophenol | 11 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 11 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 11 | U |
| 100-51-6 | Benzyl Alcohol | 11 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 11 | U |
| 95-48-7 | 2-Methylphenol | 11 | U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 11 | U |
| 106-44-5 | 4-Methylphenol | 11 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 11 | U |
| 67-72-1 | Hexachloroethane | 11 | U |
| 98-95-3 | Nitrobenzene | 11 | U |
| 78-59-1 | Isophorone | 11 | U |
| 88-75-5 | 2-Nitrophenol | 11 | U |
| 105-67-9 | 2,4-Dimethylphenol | 11 | U |
| 65-85-0 | Benzoic Acid | 54 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 11 | U |
| 120-87-2 | 2,4-Dichlorophenol | 11 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 11 | U |
| 91-20-3 | Naphthalene | 11 | U |
| 106-47-8 | 4-Chloroaniline | 11 | U |
| 87-68-7 | Hexachlorobutadiene | 11 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 11 | U |
| 91-57-6 | 2-Methylnaphthalene | 11 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 11 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 11 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 54 | U |
| 91-58-7 | 2-Chloronaphthalene | 11 | U |
| 88-74-4 | 2-Nitroaniline | 54 | U |
| 131-11-3 | Dimethyl Phthalate | 11 | U |
| 208-96-6 | Acenaphthylene | 11 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 11 | U |

0.458

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

IL-TOLSA Contract: 5511HQ10
SWOI Case No.: 1472 SAS No.: 5511Q SDG No.: HK021
(soil, water) WATER Lab Sample ID: 554905
VOL: 330 (g/mL) ML Lab File ID: FA044
(low/med) LOW Date Received: 08/05/90
e: not dec. dec. Date Extracted: 09/19/90
n: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/21/90
nup: (Y/N) N pH: 7.7 Dilution Factor: 1.0

S NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L 0

| | | | |
|---------|----------------------------|-----|----|
| 09-3 | 3-Nitroaniline | 54 | U |
| 33-32-9 | Acenaphthene | 11 | U |
| 28-5 | 2,4-Dinitrophenol | 54 | U |
| 0-02-7 | 4-Nitrophenol | 54 | U |
| 32-54-9 | Dibenzofuran | 11 | U |
| 21-14-2 | 2,4-Dinitrotoluene | 11 | U |
| 05-72-3 | Diethylphthalate | 11 | U |
| 6-73-7 | 4-Chlorophenyl-phenylether | 11 | U |
| 0-01-5 | Fluorene | 11 | U |
| 1-52-1 | 4-Nitroaniline | 54 | U |
| 6-30-6 | 4,6-Dinitro-2-Methylphenol | 54 | U |
| 0-55-3 | N-Nitrosodiphenylamine (1) | 11 | U |
| 1-74-1 | 4-Bromophenyl-phenylether | 11 | U |
| 7-86-5 | Hexachlorobenzene | 11 | U |
| 5-01-5 | Pentachlorophenol | 54 | U |
| 1-12-7 | Phenanthrene | 11 | U |
| 1-74-2 | Anthracene | 11 | U |
| 06-44-0 | Di-n-Butylphthalate | 0.3 | Bd |
| 1-00-0 | Fluoranthene | 11 | U |
| 68-7 | Pyrene | 11 | U |
| 1-94-1 | Butylbenzylphthalate | 11 | U |
| 1-55-2 | 3,3'-Dichlorobenzidine | 22 | U |
| 1-01-5 | Benzo(a)Anthracene | 11 | U |
| 1-81-7 | Chrysene | 11 | U |
| 17-84-0 | bis(2-Ethylhexyl)Phthalate | 11 | U |
| 2-39-2 | Di-n-Octyl Phthalate | 11 | U |
| 2-08-6 | Benzo(b)Fluoranthene | 11 | U |
| 2-32-8 | Benzo(k)Fluoranthene | 11 | U |
| 7-39-5 | Benzo(a)Pyrene | 11 | U |
| 7-70-3 | Indeno(1,2,3-cd)Pyrene | 11 | U |
| 1-24-2 | Dibenz(a,h)Anthracene | 11 | U |
| | Benzo(g,h,i)Perylene | 11 | U |

Cannot be separated from Diphenylamine

0459

036

040

031

032

033

IF
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

— 029

SWL-TULSA

Contract: 55114010

SWD:

Case No.: 14772

SAS No.: 55110

SDG No.: H-021

(soil/water) WATER

Lab Sample ID: T34906

wt/vol: 250 (g/mL) ML

Lab File ID: F4044

(low/med) LOW

Date Received: 08/25/90

ure: not dec. dec.

Date Extracted: 08/19/90

Ion: (SepF/Cont/Sonc) SEPF

Date Analyzed: 09/21/90

anup: (Y/N) N pH: 7.7

Dilution Factor: 1.0

TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/kg) ug/L

| NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|--------|------------------|-------|------------|---|
| | UNKNOWN COMPOUND | 21.07 | 3.210 | |
| | UNKNOWN COMPOUND | 24.64 | 4.313 | |

0460

1B
SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWL-TULSA

Contract: ES114010

49021

#: SWOH Case No.: 14772 SAS No.: ES110 SDG No.: 49021

(soil/water) WATER

Lab Sample ID: 254907

wt/vol: 1000 (g/mL) ML

Lab File ID: F999d

(low/med) LOW

Date Received: 08/25/90

ture: not dec. dec.

Date Extracted: 08/29/90

tion: (GeoF/Cont/Sonc) SEFF

Date Analyzed: 09/19/90

anup: (Y/N) N pH: 7.7

Dilution Factor: 1.0

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/kg) UG/L

Q

| | | | |
|----------|-----------------------------|----|---|
| 108-95-2 | Phenol | 10 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 10 | U |
| 95-57-8 | 2-Chlorophenol | 10 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 | U |
| 100-51-6 | Benzyl Alcohol | 10 | U |
| 50-1 | 1,2-Dichlorobenzene | 10 | U |
| 93-48-7 | 2-Methylphenol | 10 | U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 | U |
| 106-44-5 | 4-Methylphenol | 10 | U |
| 621-54-7 | N-Nitroso-Di-n-Propylamine | 10 | U |
| 67-72-1 | Hexachloroethane | 10 | U |
| 98-95-3 | Nitrobenzene | 10 | U |
| 78-59-1 | Isophorone | 10 | U |
| 88-75-5 | 2-Nitrophenol | 10 | U |
| 105-67-9 | 3,4-Dimethylphenol | 10 | U |
| 65-85-0 | Benzoic Acid | 50 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 | U |
| 120-83-2 | 2,4-Dichlorophenol | 10 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 10 | U |
| 91-20-3 | Naphthalene | 10 | U |
| 106-47-8 | 4-Chloroaniline | 10 | U |
| 87-58-3 | Hexachlorobutadiene | 10 | U |
| 59-50-7 | 4-Chloro-2-Methylphenol | 10 | U |
| 91-57-6 | 2-Methylnaphthalene | 10 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 50 | U |
| 91-58-7 | 2-Chloronaphthalene | 10 | U |
| 88-74-4 | 2-Nitroaniline | 50 | U |
| 131-11-3 | Dimethyl Phthalate | 10 | U |
| 208-98-8 | Acenaphthylene | 10 | U |
| 6-20-2 | 2,6-Dinitrotoluene | 10 | U |

0468

10
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Site: EWL-TULSA

Contract: 5511401

PROJ:

Site: SWCH

Case No.: 14770

SAS No.: 55110

SDG No.: 44001

(soil/water) WATER

Lab Sample ID: 134907

wt/vol: 1000 g/mL ML

Lab File ID: 50094

(low/med) LOW

Date Received: 08/25/90

ture: not dec. dec.

Date Extracted: 08/28/90

tion: (SepF/Cont/Sonc) SEPF

Date Analyzed: 09/19/90

anup: (Y/N) N pH: 7.7

Dilution Factor: 1.0

CAS NO.

COMPOUND

CONCENTRATION UNITS:

(ug/L or ug/Kg) ug/L

Q

| | | | |
|-----------|-----------------------------|----|---|
| 99-09-2 | 3-Nitroaniline | 50 | U |
| 83-32-9 | Acenaphthene | 10 | U |
| 51-28-5 | 2,4-Dinitrophenol | 50 | U |
| 100-02-7 | 4-Nitrophenol | 50 | U |
| 132-84-9 | Dibenzofuran | 50 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 10 | U |
| 84-86-2 | Diethylphthalate | 10 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 10 | U |
| 86-73-7 | Fluorene | 10 | U |
| 100-01-6 | 4-Nitroaniline | 10 | U |
| 534-52-1 | 4,6-Dinitro-2-Methylphenol | 50 | U |
| 86-30-6 | N-Nitrosodichenvylamine (1) | 50 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 10 | U |
| 118-74-1 | Hexachlorobenzene | 10 | U |
| 87-86-5 | Pentachlorophenol | 10 | U |
| 85-01-8 | Phenanthrene | 50 | U |
| 120-12-7 | Anthracene | 10 | U |
| 84-74-2 | Di-n-Butylphthalate | 10 | U |
| 206-44-0 | Fluoranthene | 10 | U |
| 129-00-0 | Pyrene | 10 | U |
| 85-68-7 | Butylbenzylphthalate | 10 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 10 | U |
| 56-55-3 | Benzo(a)Anthracene | 20 | U |
| 218-01-9 | Chrysene | 10 | U |
| 117-91-7 | bis(2-Ethylhexyl)Phthalate | 10 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 10 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 10 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 10 | U |
| 50-32-8 | Benzo(a)Pyrene | 10 | U |
| 193-19-5 | Indeno(1,2,3-cd)Pyrene | 10 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 10 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 10 | U |
| | | 10 | U |

1) - Cannot be separated from Dichenvylamine

0469

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SWL-TULSA Contract: 5511HQ10
 de: SWOK Case No.: 14770 GAS No.: 55110 SDG No.: 4021
 (soil/water) WATER Lab Sample ID: 354907
 wt/vol: 1000 (g/mL) ML Lab File ID: 89994
 (low/med) LOW Date Received: 08/25/90
 ture: not dec. dec. Date Extracted: 08/29/90
 tion: (SepF/Cont/Sonc) SEFF Date Analyzed: 09/19/90
 anup: (Y/N) N pH: 7.7 Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/kg) ug/L

TICs found: 0

| NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|--------|---------------|-------|------------|-------|
| ===== | ===== | ===== | ===== | ===== |
| | | | | |

0470

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

#: EWL-TULSA Contract: 55114010 #001
#: EWOL Case No.: 14772 SAS No.: 55110 SDG No.: 21001
(soil/water) WATER Lab Sample ID: 554908
wt/vol: 1000 g/mL ML Lab File ID: 55085
(low/med) LOW Date Received: 09/25/90
ture: not dec. dec. Date Extracted: 09/28/90
tion: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/19/90
anub: (Y/N) N pH: 7.7 Dilution Factor: 1.0

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L g

| | | | |
|----------|-----------------------------|----|---|
| 108-95-2 | Phenol | 10 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 10 | U |
| 95-57-3 | 2-Chlorophenol | 10 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 | U |
| 100-51-6 | Benzyl Alcohol | 10 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 | U |
| 95-48-7 | 2-Methylphenol | 10 | U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 | U |
| 106-44-5 | 4-Methylphenol | 10 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 10 | U |
| 67-72-1 | Hexachloroethane | 10 | U |
| 98-95-3 | Nitrobenzene | 10 | U |
| 78-59-1 | Isophorone | 10 | U |
| 88-75-5 | 2-Nitrophenol | 10 | U |
| 105-67-9 | 2,4-Dimethylphenol | 10 | U |
| 65-85-0 | Benzoic Acid | 10 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 50 | U |
| 120-81-2 | 2,4-Dichlorophenol | 10 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 10 | U |
| 91-20-3 | Naphthalene | 10 | U |
| 106-47-8 | 4-Chloroaniline | 10 | U |
| 87-68-7 | Hexachlorobutadiene | 10 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 10 | U |
| 91-57-6 | 2-Methylnaphthalene | 10 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 | U |
| 95-55-4 | 2,4,5-Trichlorophenol | 50 | U |
| 91-53-7 | 2-Chloronaphthalene | 10 | U |
| 88-74-4 | 2-Nitroaniline | 50 | U |
| 131-11-3 | Dimethyl Phthalate | 10 | U |
| 208-96-8 | Acenaphthylene | 10 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 10 | U |

0474

053

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

L-TULSA

Contract: 551HQ10

4072

SOWF Case No.: 14772 SAS No.: 55110 SDG No.: 4001

soil/water: WATER Lab Sample ID: 754908

t/vol: 1000 (g/mL) mL Lab File ID: 80095

(low/med) LOW Date Received: 08/05/90

re: not dec. dec. Date Extracted: 08/22/90

on: (SepF/Cont/Sonc) SEFF Date Analyzed: 09/12/90

snup: (Y/N) N pH: 7.7 Dilution Factor: 1.0

SAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

| | | | |
|----------|----------------------------|-----|---|
| 9-09-2 | 3-Nitroaniline | 50 | U |
| 3-22-9 | Acenaphthene | 10 | U |
| 1-28-5 | 2,4-Dinitrophenol | 50 | U |
| 00-02-7 | 4-Nitrophenol | 50 | U |
| 32-64-9 | Dibenzofuran | 10 | U |
| 21-14-2 | 2,4-Dinitrotoluene | 10 | U |
| 4-5-2 | Diethylphthalate | 10 | U |
| 005-72-3 | 4-Chlorophenyl-phenylether | 10 | U |
| 86-73-7 | Fluorene | 10 | U |
| 00-01-6 | 4-Nitroaniline | 50 | U |
| 34-52-1 | 4,6-Dinitro-2-Methylphenol | 50 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 10 | U |
| 01-55-3 | 4-Bromophenyl-phenylether | 10 | U |
| 18-74-1 | Hexachlorobenzene | 10 | U |
| 87-86-5 | Pentachlorophenol | 50 | U |
| 85-01-8 | Phenanthrene | 10 | U |
| 20-12-7 | Anthracene | 10 | U |
| 64-74-2 | Di-n-Butylphthalate | 0.2 | J |
| 206-44-0 | Fluoranthene | 10 | U |
| 29-00-0 | Pyrene | 10 | U |
| 5-68-7 | Butylbenzylphthalate | 10 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 20 | U |
| 6-55-3 | Benzo(a)Anthracene | 10 | U |
| 118-01-9 | Chrysene | 10 | U |
| 117-91-7 | bis(2-Ethylhexyl)Phthalate | 10 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 10 | U |
| 105-99-2 | Benzo(b)Fluoranthene | 10 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 10 | U |
| 50-32-8 | Benzo(a)Pyrene | 10 | U |
| 93-39-5 | Indeno(1,2,3-cd)Pyrene | 10 | U |
| 13-70-3 | Dibenz(a,h)Anthracene | 10 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 10 | U |

- Cannot be separated from Diphenylamine

0475

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IF
SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Name: BWL-TULSA Contract: SE114010 #011
Code: SWOK Case No.: 14772 SAS No.: SE110 SDG No.: 1-001
Matrix (soil/water): WATER Lab Sample ID: 054908
Wt/vol: 1000 (g/mL) ML Lab File ID: 00005
Conc: (low/med) LOW Date Received: 08/28/90
Pres: not dec. dec. Date Extracted: 08/28/90
Action: (Sepp/Cont/Sonc) SEPP Date Analyzed: 09/19/90
Cleanup: (Y/N) N pH: 7.7 Dilution Factor: 1.0

CONCENTRATION UNITS:

TICs found: 0 (ug/L or ug/kg) UG/L

| NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|--------|---------------|----|------------|---|
| | | | | |

0476

18
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

4K022

SWL-TULSA

Contract: 5511H010

de: SWOH

Case No.: 14772

SAS No.: 55110

SDG No.: 4K021

(soil/water) WATER

Lab Sample ID: 754906

wt/vol: 1000 (g/mL) ML

Lab File ID: F9986

(low/med) LOW

Date Received: 08/25/90

ture: not dec. dec.

Date Extracted: 08/28/90

tion: (SepF/Cont/Sonc) SEFF

Date Analyzed: 09/19/90

eanup: (Y/N) N

pH: 7.8

Dilution Factor: 1.0

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/kg) UG/L

| | | | |
|----------|-----------------------------|----|---|
| 108-95-2 | Phenol | 10 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 10 | U |
| 95-57-8 | 2-Chlorophenol | 10 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 | U |
| 100-51-2 | Benzyl Alcohol | 10 | U |
| 106-46-7 | 1,2-Dichlorobenzene | 10 | U |
| 95-48-7 | 2-Methylphenol | 10 | U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 | U |
| 106-44-5 | 4-Methylphenol | 10 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 10 | U |
| 67-72-1 | Hexachloroethane | 10 | U |
| 98-95-3 | Nitrobenzene | 10 | U |
| 78-59-1 | Isophorone | 10 | U |
| 88-75-5 | 2-Nitrophenol | 10 | U |
| 105-57-9 | 2,4-Dimethylphenol | 10 | U |
| 65-85-0 | Benzoic Acid | 50 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 | U |
| 120-83-2 | 2,4-Dichlorophenol | 10 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 10 | U |
| 91-20-3 | Naphthalene | 10 | U |
| 106-47-8 | 4-Chloroaniline | 10 | U |
| 87-68-7 | Hexachlorobutadiene | 10 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 10 | U |
| 91-57-6 | 2-Methylnaphthalene | 10 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 | U |
| 95-55-4 | 2,4,5-Trichlorophenol | 50 | U |
| 91-53-7 | 2-Chloronaphthalene | 10 | U |
| 88-74-4 | 2-Nitroaniline | 50 | U |
| 131-11-3 | Dimethyl Phthalate | 10 | U |
| 208-95-8 | Acenaphthylene | 10 | U |
| 6-20-2 | 2,6-Dinitrotoluene | 10 | U |

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10
SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE ID.

SWL-TULSA

Contract: 5511HQ10

1000

SWOK Case No.: 14772 SAS No.: 5511Q SDG No.: 4001

soil/water: WATER Lab Sample ID: 724905

/vol: 1000 (g/mL) ML Lab File ID: 5505

(low/med) LOW Date Received: 08/25/90

e: not dec. dec. Date Extracted: 08/23/90

n: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/12/90

up: (Y/N) N pH: 7.8 Dilution Factor: 1.0

S NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

| | | | |
|---------|----------------------------|----|---|
| -09-2 | 3-Nitroaniline | 50 | U |
| -32-9 | Acenaphthene | 10 | U |
| -28-5 | 2,4-Dinitrophenol | 50 | U |
| 0-02-7 | 4-Nitrophenol | 50 | U |
| 2-64-9 | Dibenzofuran | 10 | U |
| 1-14-2 | 2,4-Dinitrotoluene | 10 | U |
| -66-2 | Diethylphthalate | 10 | U |
| 05-72-3 | 4-Chlorophenyl-phenylether | 10 | U |
| -73-7 | Fluorene | 10 | U |
| 0-01-6 | 4-Nitroaniline | 50 | U |
| 4-52-1 | 4,6-Dinitro-2-Methylphenol | 50 | U |
| -50-6 | N-Nitrosodiphenylamine (1) | 10 | U |
| 1-55-3 | 4-Bromophenyl-phenylether | 10 | U |
| 8-74-1 | Hexachlorobenzene | 10 | U |
| -86-5 | Pentachlorophenol | 50 | U |
| -01-8 | Phenanthrene | 10 | U |
| 0-12-7 | Anthracene | 10 | U |
| -74-2 | Di-n-Butylphthalate | 10 | U |
| 6-44-0 | Fluoranthene | 10 | U |
| 9-00-0 | Pyrene | 10 | U |
| -68-7 | Butylbenzylphthalate | 10 | U |
| -94-1 | 3,3'-Dichlorobenzidine | 20 | U |
| -55-3 | Benzo(a)Anthracene | 10 | U |
| 9-01-9 | Chrysene | 10 | U |
| 7-81-7 | bis(2-Ethylhexyl)Phthalate | 10 | U |
| 7-84-0 | Di-n-Octyl Phthalate | 10 | U |
| 5-99-3 | Benzo(b)Fluoranthene | 10 | U |
| 7-08-9 | Benzo(k)Fluoranthene | 10 | U |
| 1-32-8 | Benzo(a)Pyrene | 10 | U |
| 5-39-5 | Indeno(1,2,3-cd)Pyrene | 10 | U |
| 1-70-3 | Dibenz(a,h)Anthracene | 10 | U |
| 01-34-2 | Benzo(g,h,i)Perylene | 10 | U |

- Cannot be separated from Diphenylamine

0482

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IF
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

4010

SWL-TULSA Contract: 5511-010
SWD Case No.: 14772 SAS No.: 55110 SDG No.: 4001
(soil/water) WATER Lab Sample ID: 554909
wt/vol: 1000 (g/mL) mL Lab File ID: 55986
(low/med) LOW Date Received: 08/25/90
ure: not dec. dec. Date Extracted: 09/28/90
ion: (SepF/Cont/Sonc) SEPE Date Analyzed: 09/19/90
anup: (Y/N) N pH: 7.8 Dilution Factor: 1.0

TICs found: 0
CONCENTRATION UNITS:
(ug/L or ug/g) ug/L

| NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|--------|---------------|-------|------------|-------|
| ===== | ===== | ===== | ===== | ===== |
| | | | | |

0483

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE

Site: BWL-TULSA Contract: 5511HQ10 #036
 Site: BWOK Case No.: 14772 SAS No.: 55110 SDG No.: HK02
 (soil/water): WATER Lab Sample ID: 554910
 wt/vol: 1000 (g/mL) ML Lab File ID: FA079
 (low/med) LOW Date Received: 08/25/90
 Temperature: not dec. dec. Date Extracted: 08/29/90
 Location: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/20/90
 Cleanup: (Y/N) N pH: 8.2 Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS:
(ug/L or ug/Kg) <u>UG/L</u> | Q |
|----------|-----------------------------|---|---|
| 108-95-2 | Phenol | 10 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 10 | U |
| 95-57-8 | 2-Chlorophenol | 10 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 | U |
| 100-51-6 | Benzyl Alcohol | 10 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 | U |
| 95-48-7 | 2-Methylphenol | 10 | U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 | U |
| 106-44-5 | 4-Methylphenol | 10 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 10 | U |
| 67-72-1 | Hexachloroethane | 10 | U |
| 98-95-3 | Nitrobenzene | 10 | U |
| 78-59-1 | Isopnorne | 10 | U |
| 88-75-5 | 2-Nitrophenol | 10 | U |
| 105-67-9 | 2,4-Dimethylphenol | 10 | U |
| 65-85-0 | Benzoic Acid | 50 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 | U |
| 120-83-2 | 2,4-Dichlorophenol | 10 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 10 | U |
| 91-20-3 | Napthalene | 10 | U |
| 106-47-8 | 4-Chloroaniline | 10 | U |
| 87-68-3 | Hexachlorobutadiene | 10 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 10 | U |
| 91-57-8 | 2-Methylnaophthalene | 10 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 | U |
| 95-55-4 | 2,4,5-Trichlorophenol | 50 | U |
| 91-58-7 | 2-Chloronapthalene | 10 | U |
| 88-74-4 | 2-Nitroaniline | 50 | U |
| 131-11-3 | Dimethyl Phthalate | 10 | U |
| 208-96-8 | Acenaphthylene | 10 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 10 | U |

0487

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EWL-TULSA

Contract: 5511HQ10

48078

Site: SWOK Case No.: 14772 SAS No.: 55110 SDG No.: -001

Media: (soil/water) WATER Lab Sample ID: 754910

wt/vol: 1000 (g/mL) ML Lab File ID: FA025

(low/med) LOW Date Received: 08/25/90

Temperature: not dec. dec. Date Extracted: 08/29/90

Extraction: (Soxh/Cont/Sonice) SEPE Date Analyzed: 09/20/90

Analysis: (Y/N) N pH: 9.3 Dilution Factor: 1.0

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L g

| | | | |
|-----------|----------------------------|-----|---|
| 99-09-1 | 3-Nitroaniline | 50 | U |
| 83-32-9 | Acenaphthene | 10 | U |
| 51-28-5 | 2,4-Dinitrophenol | 50 | U |
| 100-02-7 | 4-Nitrophenol | 50 | U |
| 132-64-9 | Dibenzofuran | 10 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 10 | U |
| 86-62-2 | Diethylphthalate | 10 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 10 | U |
| 86-73-7 | Fluorene | 10 | U |
| 100-01-6 | 4-Nitroaniline | 50 | U |
| 534-52-1 | 4,6-Dinitro-2-Methylphenol | 50 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 10 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 10 | U |
| 118-74-1 | Hexachlorobenzene | 10 | U |
| 87-86-3 | Pentachlorophenol | 50 | U |
| 85-01-6 | Phenanthrene | 10 | U |
| 120-12-7 | Anthracene | 10 | U |
| 84-74-2 | Di-n-Butylphthalate | 10 | U |
| 206-44-0 | Fluoranthene | 10 | U |
| 129-00-0 | Pyrene | 10 | U |
| 85-68-7 | Butylbenzylphthalate | 10 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 20 | U |
| 56-55-3 | Benzo(a)Anthracene | 10 | U |
| 218-01-9 | Chrysene | 10 | U |
| 117-91-7 | bis(2-Ethylhexyl)Phthalate | 0.6 | J |
| 117-84-0 | Di-n-Octyl Phthalate | 10 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 10 | U |
| 207-08-6 | Benzo(k)Fluoranthene | 10 | U |
| 50-12-9 | Benzo(a)Pyrene | 10 | U |
| 193-37-5 | Indeno(1,2,3-cd)Pyrene | 10 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 10 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 10 | U |

0488

) - Cannot be separated from Diphenylamine

IF
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

NOTE

e: BWL-TULSA Contract: 5511HQ10
 e: SWOF Case No.: 14770 SAS No.: 5511Q SDG No.: PH021
 (soil, water) WATER Lab Sample ID: 754910
 wt/vol: 1000 (g/mL) ML Lab File ID: FA029
 (low/med) LDW Date Received: 09/25/90
 ure: not dec. dec. Date Extracted: 08/29/90
 ion: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/20/90
 anup: (Y/N) N pH: 8.3 Dilution Factor: 1.0

TICs found: 1 CONCENTRATION UNITS:
 (ug/L or ug/kg) UG/L

| NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|--------|------------------|-------|------------|---|
| | UNKNOWN COMPOUND | 10.20 | 36 | U |

0489

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

me: SWL-TULSA Contract: 5511HQ10 7040

de: SWOW Case No.: 14770 SAS No.: 55110 SDG No.: HK001

: (soil/water) WATER Lab Sample ID: 554911

wt/vol: 1000 (g/mL) ML Lab File ID: 59992

(low/med) LOW Date Received: 08/05/90

ture: not dec. dec. Date Extracted: 08/12/90

tion: (SepF/Cont/Sonc) SEFF Date Analyzed: 09/19/90

eanup: (Y/N) N pH: 7.5 Dilution Factor: 1.0

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

| | | | |
|----------|-----------------------------|----|---|
| 108-95-2 | Phenol | 10 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 10 | U |
| 95-57-8 | 2-Chlorophenol | 10 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 | U |
| 100-51-6 | Benzyl Alcohol | 10 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 | U |
| 95-48-7 | 2-Methylphenol | 10 | U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 | U |
| 106-44-5 | 4-Methylphenol | 10 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 10 | U |
| 67-72-1 | Hexachloroethane | 10 | U |
| 98-95-3 | Nitrobenzene | 10 | U |
| 79-59-1 | Isophorone | 10 | U |
| 88-75-5 | 2-Nitrophenol | 10 | U |
| 105-57-9 | 2,4-Dimethylphenol | 10 | U |
| 65-85-0 | Benzoic Acid | 50 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 | U |
| 120-83-2 | 2,4-Dichlorophenol | 10 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 10 | U |
| 91-20-3 | Naphthalene | 10 | U |
| 106-47-8 | 4-Chloroaniline | 10 | U |
| 87-58-3 | Hexachlorobutadiene | 10 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 10 | U |
| 91-57-6 | 2-Methylnaphthalene | 10 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 | U |
| 95-55-4 | 2,4,5-Trichlorophenol | 50 | U |
| 91-53-7 | 2-Chloronaphthalene | 10 | U |
| 88-74-4 | 2-Nitroaniline | 50 | U |
| 131-11-3 | Dimethyl Phthalate | 10 | U |
| 208-96-8 | Acenaphthylene | 10 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 10 | U |

0495

10
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

0040

me: EWL-TULSA Contract: 55114010
de: SWOF Case No.: 14772 SAS No.: 55110 SDG No.: 44001
(soil/water) WATER Lab Sample ID: 724911
wt/vol: 1000 (g/mL) ML Lab File ID: 55002
(low/med) LOW Date Received: 12/25/90
ture: not dec. dec. Date Extracted: 12/28/90
tion: (SeoF/Cont/Sonc) SEFF Date Analyzed: 1/19/91
eanuo: (Y/N) N pH: 7.5 Dilution Factor: 1.0

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

| | | | |
|-----------|----------------------------|-----|---|
| 99-09-2 | 3-Nitroaniline | 50 | U |
| 83-32-9 | Acenaphthene | 10 | U |
| 51-28-5 | 2,4-Dinitrophenol | 50 | U |
| 100-02-7 | 4-Nitrophenol | 50 | U |
| 122-64-9 | Dibenzofuran | 10 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 10 | U |
| 84-66-2 | Diethylphthalate | 10 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 10 | U |
| 86-73-7 | Fluorene | 10 | U |
| 100-01-6 | 4-Nitroaniline | 50 | U |
| 534-52-1 | 4,6-Dinitro-2-Methylphenol | 50 | U |
| 86-30-8 | N-Nitrosodiphenylamine (1) | 10 | U |
| 101-55-7 | 4-Bromophenyl-phenylether | 10 | U |
| 118-74-1 | Hexachlorobenzene | 10 | U |
| 87-86-5 | Pentachlorophenol | 50 | U |
| 85-01-8 | Phenanthrene | 10 | U |
| 120-12-7 | Anthracene | 10 | U |
| 84-74-2 | Di-n-Butylphthalate | 10 | U |
| 206-44-0 | Fluoranthene | 10 | U |
| 129-00-0 | Pyrene | 10 | U |
| 85-68-7 | Butylbenzylphthalate | 10 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 20 | U |
| 56-55-3 | Benzo(a)Anthracene | 10 | U |
| 218-01-9 | Chrysene | 10 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 0.6 | J |
| 117-84-0 | Di-n-Octyl Phthalate | 10 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 10 | U |
| 207-08-6 | Benzo(k)Fluoranthene | 10 | U |
| 50-32-8 | Benzo(a)Pyrene | 10 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 10 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 10 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 10 | U |

1) - Cannot be separated from Diphenylamine

0496

1F
SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SP# SAMPLE NO.

Site: EWL-TULSA Contract: 5511HQ10 PR040
 Re: EW01 Case No.: 14772 SAS No.: 55110 SDG No.: 44001
 (soil/water) WATER Lab Sample ID: 554911
 wt/vol: 1000 (g/mL) ML Lab File ID: 55000
 (low/med) LOW Date Received: 08/05/90
 ure: not dec. dec. Date Extracted: 08/08/90
 ion: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/19/90
 eanup: (Y/N) N pH: 7.5 Dilution Factor: 1.0

TICs found: 0 CONCENTRATION UNITS:
 (ug/L or ug/kg) UG/L

| NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|--------|---------------|-------|------------|-------|
| ===== | ===== | ===== | ===== | ===== |
| | | | | |

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18
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

me: BWL-TULSA Contract: 5511HQ10 7041
 de: EWOP Case No.: 14772 SAS No.: 5511Q EDE No.: 4001
 : (soil/water) WATER Lab Sample ID: 554912
 wt/vol: 1000 (g/mL) ML Lab File ID: 55997
 (low/med) LOW Date Received: 08/25/90
 ture: not dec. dec. Date Extracted: 09/22/90
 tion: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/19/90
 eanup: (Y/N) N pH: 7.8 Dilution Factor: 1.0

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO. COMPOUND g

| | | | |
|----------|-----------------------------|----|---|
| 108-95-2 | Phenol | 10 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 10 | U |
| 95-57-8 | 2-Chlorophenol | 10 | U |
| 541-75-1 | 1,3-Dichlorobenzene | 10 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 | U |
| 100-51-6 | Benzyl Alcohol | 10 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 | U |
| 95-48-7 | 2-Methylphenol | 10 | U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 | U |
| 106-44-5 | 4-Methylphenol | 10 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 10 | U |
| 67-72-1 | Hexachloroethane | 10 | U |
| 98-95-3 | Nitrobenzene | 10 | U |
| 78-59-1 | Isophorone | 10 | U |
| 88-75-5 | 2-Nitrophenol | 10 | U |
| 105-67-9 | 2,4-Dimethylphenol | 10 | U |
| 65-85-0 | Benzoic Acid | 50 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 | U |
| 120-83-2 | 2,4-Dichlorophenol | 10 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 10 | U |
| 91-20-3 | Naphthalene | 10 | U |
| 106-47-8 | 4-Chloroaniline | 10 | U |
| 87-68-3 | Hexachlorobutadiene | 10 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 10 | U |
| 91-57-3 | 2-Methylnaphthalene | 10 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 | U |
| 88-06-3 | 2,4,6-Trichlorophenol | 10 | U |
| 95-65-4 | 2,4,5-Trichlorophenol | 50 | U |
| 91-58-7 | 2-Chloronaphthalene | 10 | U |
| 88-74-4 | 2-Nitroaniline | 50 | U |
| 171-11-3 | Dimethyl Phthalate | 10 | U |
| 208-95-6 | Acenaphthylene | 10 | U |
| 808-20-2 | 2,6-Dinitrotoluene | 10 | U |

0502

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Sample: EWL-TULSA Contract: 55114010 #041
 Code: EWOK Case No.: 14772 SAS No.: 55110 SDG No.: 4K021
 : (soil/water) WATER Lab Sample ID: 754910
 wt/vol: 1000 (g/mL) ML Lab File ID: 55003
 (low/med) LOW Date Received: 08/05/90
 Nature: not dec. dec. Date Extracted: 08/08/90
 tion: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/19/90
 Cleanup: (Y/N) N pH: 7.8 Dilution Factor: 1.0
 CAS NO. COMPOUND CONCENTRATION UNITS:
 (ug/L or ug/kg) UG/L 0

| | | | |
|-----------|----------------------------|----|---|
| 99-09-1 | 3-Nitroaniline | 50 | U |
| 83-32-9 | Acenaphthene | 10 | U |
| 51-28-5 | 2,4-Dinitrophenol | 50 | U |
| 100-02-7 | 4-Nitrophenol | 50 | U |
| 132-64-9 | Dibenzofuran | 10 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 10 | U |
| 84-66-2 | Diethylphthalate | 10 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 10 | U |
| 86-73-7 | Fluorene | 10 | U |
| 100-01-6 | 4-Nitroaniline | 10 | U |
| 534-52-1 | 4,6-Dinitro-2-Methylphenol | 50 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 50 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 10 | U |
| 118-74-1 | Hexachlorobenzene | 10 | U |
| 87-36-5 | Pentachlorophenol | 10 | U |
| 85-01-3 | Phenanthrene | 50 | U |
| 120-12-7 | Anthracene | 10 | U |
| 84-74-2 | Di-n-Butylphthalate | 10 | U |
| 206-44-0 | Fluoranthene | 10 | U |
| 129-00-0 | Pyrene | 10 | U |
| 85-63-7 | Butylbenzylphthalate | 10 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 10 | U |
| 54-55-3 | Benzo(a)Anthracene | 20 | U |
| 218-01-9 | Chrysene | 10 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 10 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 10 | U |
| 207-08-6 | Benzo(k)Fluoranthene | 10 | U |
| 50-32-3 | Benzo(a)Pyrene | 10 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 10 | U |
| 53-70-3 | Dibenzo(a,n)Anthracene | 10 | U |
| 191-24-3 | Benzo(g,h,i)Perylene | 10 | U |

- Cannot be separated from Diphenylamine

0503

IF
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HK041

Name: EWL-TULSA Contract: 5511HQ10
Code: ENOH Case No.: 14772 SAS No.: 55110 SDG No.: HK041
Matrix: (soil/water) WATER Lab Sample ID: 354912
Sample wt/vol: 1000 (g/mL) ML Lab File ID: F9997
Level: (low/med) LOW Date Received: 08/25/90
Preservation: not dec. dec. Date Extracted: 08/25/90
Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/15/90
Cleanup: (Y/N) N pH: 7.8 Dilution Factor: 1.0

Number of TICs found: 0 CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

| AS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|-----------|---------------|-------|------------|-------|
| ===== | ===== | ===== | ===== | ===== |

18
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

IQA SAMPLE NO.

Name: SWL-TULSA Contract: 551HQ10 HK042
 Code: SWOH Case No.: 14772 SAS No.: 55110 SDG No.: HK051
 Media: (soil/water) SOIL Lab Sample ID: 254917
 Conc: (wt/vol): 10.0 (g/mL) g Lab File ID: FA001
 Temp: (low/med) LOW Date Received: 08/25/90
 Pressure: not dec. 25 dec. Date Extracted: 08/29/90
 Fraction: (SepF/Cont/Sonc) SONC Date Analyzed: 09/19/90
 Cleanup: (Y/N) Y pH: 6.0 Dilution Factor: 1.0

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG Q

| | | | |
|----------|-----------------------------|------|---|
| 108-95-2 | Phenol | 880 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 880 | U |
| 95-57-8 | 2-Chlorophenol | 880 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 880 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 880 | U |
| 100-51-6 | Benzyl Alcohol | 880 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 880 | U |
| 95-48-7 | 2-Methylphenol | 880 | U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 880 | U |
| 106-44-5 | 4-Methylphenol | 880 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 880 | U |
| 67-72-1 | Hexachloroethane | 880 | U |
| 98-95-1 | Nitrobenzene | 880 | U |
| 78-59-1 | Isophorone | 880 | U |
| 89-75-5 | 2-Nitrophenol | 880 | U |
| 105-67-9 | 2,4-Dimethylphenol | 880 | U |
| 65-85-0 | Benzoic Acid | 4300 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 880 | U |
| 120-83-2 | 2,4-Dichlorophenol | 880 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 880 | U |
| 91-20-3 | Napthalene | 880 | U |
| 106-47-3 | 4-Chloroaniline | 880 | U |
| 97-58-3 | Hexachlorobutadiene | 880 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 880 | U |
| 91-57-6 | 2-Methylnapthalene | 880 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 880 | U |
| 98-06-1 | 2,4,6-Trichlorophenol | 880 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 4300 | U |
| 91-58-7 | 2-Chloronapthalene | 880 | U |
| 88-74-4 | 2-Nitroaniline | 4300 | U |
| 121-11-3 | Dimethyl Phthalate | 880 | U |
| 208-96-8 | Acenaphthylene | 880 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 880 | U |

0508

10
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPL

Name: SWL-TULSA Contract: 5511HQ10 → 042
Code: SWOP Case No.: 14772 SAS No.: 5511Q SDG No.: HK02
ix: (soil/water) SOIL Lab Sample ID: 754913
le wt/vol: 10.0 (g/mL) g Lab File ID: FA001
l: (low/med) LOW Date Received: 08/25/90
isture: not dec. 25 dec. Date Extracted: 08/29/90
action: (SepF/Cont/Sonc) SONC Date Analyzed: 09/19/90
Cleanup: (Y/N) Y pH: 5.0 Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

| CAS NO. | COMPOUND | Q |
|-----------|----------------------------|--------|
| 99-09-2 | 3-Nitroaniline | 4300 U |
| 83-32-9 | Acenaphthene | 880 U |
| 51-28-5 | 2,4-Dinitrophenol | 4300 U |
| 100-02-7 | 4-Nitrophenol | 4300 U |
| 132-64-9 | Dibenzofuran | 880 U |
| 121-14-2 | 2,4-Dinitrotoluene | 880 U |
| 84-66-2 | Diethylphthalate | 880 U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 880 U |
| 86-73-7 | Fluorene | 880 U |
| 100-01-6 | 4-Nitroaniline | 4300 U |
| 534-52-1 | 4,6-Dinitro-2-Methylphenol | 4300 U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 880 U |
| 101-55-3 | 4-Bromophenyl-phenylether | 880 U |
| 118-74-1 | Hexachlorobenzene | 880 U |
| 87-36-5 | Pentachlorophenol | 4300 U |
| 85-01-6 | Phenanthrene | 880 U |
| 120-12-7 | Anthracene | 880 U |
| 84-74-2 | Di-n-Butylphthalate | 880 U |
| 206-44-0 | Fluoranthene | 880 U |
| 129-00-0 | Pyrene | 880 U |
| 95-58-7 | Butylbenzylphthalate | 880 U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 1800 U |
| 56-55-7 | Benzo(a)Anthracene | 880 U |
| 218-01-9 | Chrysene | 880 U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 100 BG |
| 117-84-0 | Di-n-Octyl Phthalate | 880 U |
| 205-99-3 | Benzo(b)Fluoranthene | 880 U |
| 207-08-6 | Benzo(k)Fluoranthene | 880 U |
| 50-32-8 | Benzo(a)Pyrene | 880 U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 880 U |
| 53-70-3 | Dibenz(a,h)Anthracene | 880 U |
| 191-24-3 | Benzo(g,h,i)Perylene | 880 U |

RECEIVED

(1) - Cannot be separated from Diphenylamine

OCT - 1 1990

0509

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Name: BWL-TULSA Contract: 5511H010 042
Code: SWOH Case No.: 14772 SAS No.: 55110 SDG No.: HK021
Type: (soil/water) SOIL Lab Sample ID: 754913
Conc: wt/vol: 50.0 ug/mL: 5 Lab File ID: FA001
Level: (low/med) LOW Date Received: 08/25/90
Maturity: not dec. 25 dec. Date Extracted: 08/29/90
Action: (SepF/Cont/Sonc) SONC Date Analyzed: 09/19/90
Cleanup: (Y/N) Y pH: 5.0 Dilution Factor: 1.0

Concentration Units: ug/L or ug/Kg
of TICs found: 8

| AS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|-----------|---------------------|-------|------------|----|
| 1 | UNKNOWN COMPOUND | 15.94 | 710 | 1J |
| 2 | UNKNOWN ACID | 18.35 | 180 | 1J |
| 3 | UNKNOWN COMPOUND | 19.54 | 270 | 1J |
| 4 | UNKNOWN HYDROCARBON | 22.47 | 180 | 1J |
| 5 | UNKNOWN HYDROCARBON | 23.79 | 440 | 1J |
| 6 | UNKNOWN HYDROCARBON | 25.02 | 440 | 1J |
| 7 | UNKNOWN COMPOUND | 26.57 | 360 | 1J |
| 8 | UNKNOWN COMPOUND | 28.41 | 180 | 1J |

0510

18
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Name: EWL-TULSA Contract: 5511H010 #043
 Code: EWOR Case No.: 14772 SAS No.: 5511Q SDG No.: 4021
 In: (soil/water) WATER Lab Sample ID: 754914
 In wt/vol: 1000 (g/mL) ML Lab File ID: 55004
 In: (low/med) LOW Date Received: 08/25/90
 Moisture: not dec. dec. Date Extracted: 08/28/90
 Action: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/10/90
 Cleanup: (Y/N) N pH: 7.8 Dilution Factor: 1.0

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

| | | | |
|----------|-----------------------------|----|---|
| 108-95-2 | Phenol | 10 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 10 | U |
| 95-57-8 | 2-Chlorophenol | 10 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 | U |
| 100-51-6 | Benzyl Alcohol | 10 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 | U |
| 95-48-7 | 2-Methylphenol | 10 | U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 | U |
| 106-44-5 | 4-Methylphenol | 10 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 10 | U |
| 67-72-1 | Hexachloroethane | 10 | U |
| 98-95-3 | Nitrobenzene | 10 | U |
| 78-59-1 | Isophorone | 10 | U |
| 88-75-5 | 2-Nitrophenol | 10 | U |
| 105-67-0 | 2,4-Dimethylphenol | 10 | U |
| 65-85-0 | Benzoic Acid | 50 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 | U |
| 120-83-2 | 2,4-Dichlorophenol | 10 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 10 | U |
| 91-20-3 | Napthalene | 10 | U |
| 106-47-8 | 4-Chloroaniline | 10 | U |
| 97-68-3 | Hexachlorobutadiene | 10 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 10 | U |
| 91-57-6 | 2-Methylnaphthalene | 10 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 | U |
| 98-06-2 | 2,4,6-Trichlorophenol | 10 | U |
| 95-45-4 | 2,4,5-Trichlorophenol | 50 | U |
| 91-58-7 | 2-Chloronaphthalene | 10 | U |
| 98-74-4 | 2-Nitroaniline | 50 | U |
| 101-11-3 | Dimethyl Phthalate | 10 | U |
| 208-96-8 | Acenaphthylene | 10 | U |
| 506-20-2 | 2,6-Dinitrotoluene | 10 | U |

0524

10
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Name: SWL-TULSA Contract: 5511H010 HK043

Code: SWOK Case No.: 14772 SAS No.: 55110 SDG No.: HK001

Mat: (soil/water) WATER Lab Sample ID: 554914

Conc: wt/vol: 1000 (g/mL) ML Lab File ID: 55994

Flow: (low/med) LOW Date Received: 08/25/90

Extraction: not dec. dec. Date Extracted: 08/28/90

Extraction: (SepF/Cont/Sonic) SEPF Date Analyzed: 09/19/90

Cleanup: (Y/N) N pH: 7.8 Dilution Factor: 1.0

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

| | | | |
|-----------|----------------------------|-----|---|
| 99-09-2 | 3-Nitroaniline | 50 | U |
| 83-32-9 | Acenaphthene | 10 | U |
| 51-28-5 | 2,4-Dinitrophenol | 50 | U |
| 100-02-7 | 4-Nitrophenol | 50 | U |
| 132-64-9 | Dibenzofuran | 10 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 10 | U |
| 84-66-2 | Diethylphthalate | 10 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 10 | U |
| 86-73-7 | Fluorene | 10 | U |
| 100-01-6 | 4-Nitroaniline | 50 | U |
| 534-52-1 | 4,6-Dinitro-2-Methylphenol | 50 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 10 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 10 | U |
| 118-74-1 | Hexachlorobenzene | 10 | U |
| 87-86-5 | Pentachlorophenol | 50 | U |
| 85-01-8 | Phenanthrene | 10 | U |
| 120-12-7 | Anthracene | 10 | U |
| 84-74-2 | Di-n-Butylphthalate | 10 | U |
| 206-44-0 | Fluoranthene | 10 | U |
| 129-00-0 | Pyrene | 10 | U |
| 85-68-7 | Butylbenzylphthalate | 10 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 20 | U |
| 56-55-3 | Benzo(a)Anthracene | 10 | U |
| 218-01-9 | Chrysene | 10 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 0.6 | J |
| 117-84-0 | Di-n-Octyl Phthalate | 10 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 10 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 10 | U |
| 50-32-8 | Benzo(a)Pyrene | 10 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 10 | U |
| 53-70-3 | Dibenzo(a,h)Anthracene | 10 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 10 | U |

1) - Cannot be separated from Diphenylamine

0525

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

7047

Site: SWL-TULSA Contract: SE11HQ10
 Date: SWOK Case No.: 14772 GAS No.: SE110 SDG No.: W021
 Media: (soil/water) WATER Lab Sample ID: TE4911
 Wt/vol: 1000 g/mL ML Lab File ID: FE994
 Level: (low/med) LOW Date Received: 08/25/90
 Stature: not dec. dec. Date Extracted: 08/28/90
 Action: (Sep/F/Cont/Sonc) SEPF Date Analyzed: 09/19/90
 Cleanup: (Y/N) N pH: 7.8 Dilution Factor: 1.0

CONCENTRATION UNITS:
µg/L or µg/kg or µS/L

TICs found: 0

| IS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|-----------|---------------|-------|------------|-------|
| ===== | ===== | ===== | ===== | ===== |
| ===== | ===== | ===== | ===== | ===== |

0526

ICHL 9-19

18
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Name: SWL-TULSA Contract: 5511HQ10 #K044
 Code: SWOK Case No.: 14772 SAS No.: 55110 EDG No.: HK001
 In: (soil/water) SOIL Lab Sample ID: 754915
 In wt/vol: 10.0 (g/mL) g Lab File ID: 55006
 In: (low/med) LOW Date Received: 08/25/90
 Moisture: not dec. 15 dec. Date Extracted: 08/29/90
 Action: (SepF/Cont/Sonc) SONC Date Analyzed: 09/19/90
 Cleanup: (Y/N) Y pH: 6.8 Dilution Factor: 1.0

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG g

| | | | |
|----------|-----------------------------|------|---|
| 108-95-2 | Phenol | 780 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 780 | U |
| 95-57-8 | 2-Chlorophenol | 780 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 780 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 780 | U |
| 100-51-6 | Benzyl Alcohol | 780 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 780 | U |
| 95-48-7 | 2-Methylphenol | 780 | U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 780 | U |
| 106-44-5 | 4-Methylphenol | 780 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 780 | U |
| 67-72-1 | Hexachloroethane | 780 | U |
| 98-95-3 | Nitrobenzene | 780 | U |
| 78-59-1 | Isonorone | 780 | U |
| 88-75-5 | 2-Nitrophenol | 780 | U |
| 105-67-9 | 2,4-Dimethylphenol | 780 | U |
| 65-85-0 | Benzoic Acid | 3800 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 780 | U |
| 120-83-2 | 2,4-Dichlorophenol | 780 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 780 | U |
| 91-20-3 | Naphthalene | 780 | U |
| 106-47-8 | 4-Chloroaniline | 780 | U |
| 87-68-7 | Hexachlorobutadiene | 780 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 780 | U |
| 91-57-6 | 2-Methylnaphthalene | 780 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 780 | U |
| 88-06-3 | 2,4,6-Trichlorophenol | 780 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 3800 | U |
| 91-58-7 | 2-Chloronaphthalene | 780 | U |
| 88-74-4 | 2-Nitroaniline | 3800 | U |
| 131-11-7 | Dimethyl Phthalate | 780 | U |
| 208-96-8 | Acenaphthylene | 780 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 780 | U |

0531

10
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

-P044

Name: SWL-TULSA Contract: 55114010
 Code: SWOK Case No.: 14772 SAS No.: 55110 SDG No.: HK001
 (soil/water) SOIL Lab Sample ID: 734915
 wt/vol: 20.0 (g/mL) g Lab File ID: 73996
 (low/med) LOW Date Received: 03/25/90
 Sture: not dec. 15 dec. Date Extracted: 08/02/90
 Action: (SepF/Cont/Sonc) SONC Date Analyzed: 09/19/90
 Cleanup: (Y/N) Y PH: 6.8 Dilution Factor: 1.0

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/kg) ug/kg Q

| | | | |
|-----------|----------------------------|------|----|
| 99-09-2 | 3-Nitroaniline | 7800 | U |
| 83-32-9 | Acenaphthene | 780 | U |
| 51-28-5 | 2,4-Dinitrophenol | 7800 | U |
| 100-02-7 | 4-Nitrophenol | 7800 | U |
| 132-64-9 | Dibenzofuran | 780 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 780 | U |
| 84-66-2 | Diethylphthalate | 780 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 780 | U |
| 86-73-7 | Fluorene | 780 | U |
| 100-01-6 | 4-Nitroaniline | 7800 | U |
| 534-52-1 | 4,6-Dinitro-3-Methylphenol | 7800 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 780 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 780 | U |
| 118-74-1 | Hexachlorobenzene | 780 | U |
| 87-86-5 | Pentachlorophenol | 7800 | U |
| 85-01-8 | Phenanthrene | 780 | U |
| 120-12-7 | Anthracene | 780 | U |
| 84-74-2 | Di-n-Butylphthalate | 780 | U |
| 206-44-0 | Fluoranthene | 780 | U |
| 129-00-0 | Pyrene | 780 | U |
| 85-68-7 | Butylbenzylphthalate | 780 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 1600 | U |
| 56-55-3 | Benzo(a)Anthracene | 780 | U |
| 218-01-9 | Chrysene | 780 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 150 | BJ |
| 117-84-0 | Di-n-Octyl Phthalate | 19 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 780 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 780 | U |
| 50-32-8 | Benzo(a)Pyrene | 780 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 780 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 780 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 780 | U |

(1) - Cannot be separated from Diphenylamine

0532

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Site: SWL-TULSA Contract: 5511HQ10 EPA ID: 44044
 Code: SWOK Case No.: 14772 SAS No.: 5511Q SDG No.: 44021
 Matrix: (soil/water) SOIL Lab Sample ID: 754915
 Concentration: (wt/vol) 30.0 (g/mL) 5 Lab File ID: 50004
 Frequency: (low/med) LOW Date Received: 08/25/90
 Storage: not dec. 15 dec. Date Extracted: 08/29/90
 Extraction: (SepF/Cont/Sonic) SONC Date Analyzed: 09/19/90
 Cleanup: (Y/N) Y pH: 5.8 Dilution Factor: 1.0

Number of TICs found: 3 CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

| IS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|-----------|-------------------------|-------|------------|---|
| 57103 | UNKNOWN COMPOUND | 15.97 | 310 | J |
| | Hexadecanoic acid (9CI) | 18.39 | 240 | J |
| | UNKNOWN COMPOUND | 24.65 | 390 | J |

14 JUL 1990

0533

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMP

HK018

Contract: 5511HQ10

Case No.: 14772

SAS No.: 55110

SDG No.: HK02

soil water) WATER

Lab Sample ID: 3553-01

Conc: 1000 (g/mL) ML

Lab File ID:

Conc/med) LOW

Date Received: 08/27/90

Prep: not dec. dec.

Date Extracted: 08/30/90

Prep: (SepF/Cont/Sonc) SEPF

Date Analyzed: 09/06/90

Prep: (Y/N) N pH: 6.9

Dilution Factor: 1.00

CONC. COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

Q

| | | |
|------------|---------------------|---------|
| 219-34-6 | alpha-BHC | 0.0501U |
| 219-35-7 | beta-BHC | 0.0501U |
| 219-36-8 | delta-BHC | 0.0501U |
| 59-59-9 | gamma-BHC (Lindane) | 0.0501U |
| 76-44-4 | Heptachlor | 0.0501U |
| 209-00-2 | Aldrin | 0.0501U |
| 1024-57-3 | Heptachlor epoxide | 0.0501U |
| 959-98-8 | Endosulfan I | 0.0501U |
| 60-57-1 | Dieldrin | 0.101U |
| 72-55-9 | 4,4'-DDE | 0.101U |
| 72-20-8 | Endrin | 0.101U |
| 2213-65-9 | Endosulfan II | 0.101U |
| 72-54-0 | 4,4'-DDD | 0.101U |
| 1031-07-8 | Endosulfan sulfate | 0.101U |
| 50-29-3 | 4,4'-DDT | 0.101U |
| 72-43-5 | Methoxychlor | 0.501U |
| 52494-70-5 | Endrin Ketone | 0.101U |
| 5105-71-9 | alpha-Chlordane | 0.501U |
| 5105-74-2 | gamma-Chlordane | 0.501U |
| 8001-35-2 | Toxaphene | 1.01U |
| 12674-11-2 | Aroclor-1016 | 0.501U |
| 11104-28-2 | Aroclor-1221 | 0.501U |
| 11141-16-5 | Aroclor-1232 | 0.501U |
| 52469-21-9 | Aroclor-1242 | 0.501U |
| 12672-29-6 | Aroclor-1248 | 0.501U |
| 11097-69-1 | Aroclor-1254 | 1.01U |
| 11096-82-5 | Aroclor-1260 | 1.01U |

0743

ID
EPA ANALYSIS DATA SHEET

EPA SAMPLE NO.

HK019

Contract: 5511HQ10

Case No.: 14772

SAS No.: 5511Q

SDG No.: HK021

Sample

Lab Sample ID: 5551-02

Conc (g/mL) ML

Lab File ID:

IN

Date Received: 08/27/90

dec.

Date Extracted: 08/30/90

Sample Test/Conc

SEPF

Date Analyzed: 09/06/90

pH: 5.8

Dilution Factor: 1.00

COMPOUND

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

Q

| | | |
|----|---------------------|---------|
| 1 | alpha-BHC | 0.050:U |
| 2 | beta-BHC | 0.050:U |
| 3 | delta-BHC | 0.050:U |
| 4 | gamma-BHC (Lindane) | 0.050:U |
| 5 | Heptachlor | 0.050:U |
| 6 | Aldrin | 0.050:U |
| 7 | Heptachlor epoxide | 0.050:U |
| 8 | Endosulfan I | 0.050:U |
| 9 | Dieldrin | 0.10:U |
| 10 | 4,4'-DDE | 0.10:U |
| 11 | Endrin | 0.10:U |
| 12 | Endosulfan II | 0.10:U |
| 13 | 4,4'-DDD | 0.10:U |
| 14 | Endosulfan sulfate | 0.10:U |
| 15 | 4,4'-DDT | 0.10:U |
| 16 | Methoxychlor | 0.50:U |
| 17 | Endrin ketone | 0.10:U |
| 18 | alpha-Chlordane | 0.50:U |
| 19 | gamma-Chlordane | 0.50:U |
| 20 | toxaphene | 1.0:U |
| 21 | Aroclor-1016 | 0.50:U |
| 22 | Aroclor-1221 | 0.50:U |
| 23 | Aroclor-1232 | 0.50:U |
| 24 | Aroclor-1242 | 0.50:U |
| 25 | Aroclor-1248 | 0.50:U |
| 26 | Aroclor-1254 | 1.0:U |
| 27 | Aroclor-1260 | 1.0:U |

023

019

020

021

02

1D
FEST 100 ANALYSIS DATA SHEET

EPA SAMPLE NO.

HK020

Contract: 5511HQ10

Lab No.: 14772

SAS No.: 55110

SDG No.: HK021

ANALYST: JER

Lab Sample ID: 5555-03

(g/mL) ML

Lab File ID:

Date Received: 08/27/90

dec.

Date Extracted: 08/30/90

Lab Prep (Sonic)

SEPF

Date Analyzed: 09/06/90

pH: 7.2

Dilution Factor: 1.00

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

| | | |
|------|---------------------|---------|
| 001 | alpha-BHC | 0.050IU |
| 002 | beta-BHC | 0.050IU |
| 003 | delta-BHC | 0.050IU |
| 004 | gamma-BHC (Lindane) | 0.050IU |
| 005 | heptachlor | 0.050IU |
| 006 | dieldrin | 0.050IU |
| 007 | heptachlor epoxide | 0.050IU |
| 008 | Endosulfan I | 0.050IU |
| 009 | Dieldrin | 0.050IU |
| 010 | 4,4'-DDE | 0.10IU |
| 011 | Endrin | 0.10IU |
| 012 | Endosulfan II | 0.10IU |
| 013 | 4,4'-DDD | 0.10IU |
| 014 | Endosulfan sulfate | 0.10IU |
| 015 | 4,4'-DDT | 0.10IU |
| 016 | Methoxychlor | 0.10IU |
| 017 | Endrin ketone | 0.50IU |
| 018 | alpha-Chlordane | 0.10IU |
| 019 | gamma-Chlordane | 0.50IU |
| 020 | toxaphene | 0.50IU |
| 2674 | Aroclor-1016 | 1.0IU |
| 1104 | Aroclor-1221 | 0.50IU |
| 114 | Aroclor-1221 | 0.50IU |
| 114 | Aroclor-1232 | 0.50IU |
| 114 | Aroclor-1242 | 0.50IU |
| 2672 | Aroclor-1248 | 0.50IU |
| 107 | Aroclor-1254 | 0.50IU |
| 107 | Aroclor-1254 | 1.0IU |
| 107 | Aroclor-1260 | 1.0IU |

023

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021

02

ID

EPA SAMPLE NO.

ANALYSIS DATA SHEET

Contract: 5511HQ10

HK021

Lab No.: 1472SAS No.: 55110SDG No.: HK021Lab Sample ID: 3549-01

Lab File ID: _____

Date Received: 08/25/90Date Extracted: 08/29/90Date Analyzed: 09/06/90Dilution Factor: 1.00

dec. _____

PH: 7.7

COMPOUND

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

g

| | |
|---------------------|---------|
| alpha-BHC | 0.050IU |
| beta-BHC | 0.050IU |
| delta-BHC | 0.050IU |
| gamma-BHC (Lindane) | 0.050IU |
| heptachlor | 0.050IU |
| dieldrin | 0.050IU |
| heptachlor epoxide | 0.050IU |
| Endosulfan I | 0.050IU |
| dieldrin | 0.10IU |
| 1,4'-DDE | 0.10IU |
| Endrin | 0.10IU |
| Endosulfan II | 0.10IU |
| 1,4'-DDD | 0.10IU |
| Endosulfan sulfate | 0.10IU |
| 1,4'-DDT | 0.10IU |
| methoxychlor | 0.50IU |
| Endrin ketone | 0.10IU |
| alpha-Chlordane | 0.50IU |
| gamma-Chlordane | 0.50IU |
| Graphene | 1.0IU |
| Decolor-1016 | 0.50IU |
| Decolor-1221 | 0.50IU |
| Decolor-1232 | 0.50IU |
| Decolor-1242 | 0.50IU |
| Decolor-1248 | 0.50IU |
| Decolor-1254 | 1.0IU |
| Decolor-1260 | 1.0IU |

EVAL SID.
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022

1D
PEST AND ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HK022

Contract: 5511HQ10

Case No.: 14772

SAS No.: 5511Q

SDG No.: HK021

WATER

Lab Sample ID: 3549-02

1000 (g/mL) ML

Lab File ID:

LOW

Date Received: 08/25/90

dec.

Date Extracted: 08/29/90

SEPF

Date Analyzed: 09/07/90

pH: 7.8

Dilution Factor: 1.00

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

COMPOUND

Q

| | | |
|-----------|---------------------|---------|
| 19-14-1 | alpha-BHC | 0.050IU |
| 19-15-1 | beta-BHC | 0.050IU |
| 19-16-1 | delta-BHC | 0.050IU |
| 19-17-1 | gamma-BHC (Lindane) | 0.050IU |
| 5-14-1 | Heptachlor | 0.050IU |
| 09-10-1 | Aldrin | 0.050IU |
| 05-15-1 | Heptachlor epoxide | 0.050IU |
| 59-08-1 | Endosulfan I | 0.050IU |
| 6-17-1 | Dieldrin | 0.10IU |
| 2-15-1 | 4,4'-DDE | 0.10IU |
| 2-16-1 | Endrin | 0.10IU |
| 32-15-1 | Endosulfan II | 0.10IU |
| 2-14-1 | 4,4'-DDD | 0.10IU |
| 03-17-1 | Endosulfan sulfate | 0.10IU |
| 6-20-1 | 4,4'-DDT | 0.10IU |
| 2-17-1 | Methoxychlor | 0.50IU |
| 2494-10-1 | Endrin ketone | 0.10IU |
| 197-7-1 | alpha-Chlordane | 0.50IU |
| 197-14-1 | gamma-Chlordane | 0.50IU |
| 091-15-1 | Toxaphene | 1.0IU |
| 2674-11-1 | Aroclor-1016 | 0.50IU |
| 1194-10-1 | Aroclor-1221 | 0.50IU |
| 1141-10-1 | Aroclor-1232 | 0.50IU |
| 2469-11-1 | Aroclor-1242 | 0.50IU |
| 2672-10-1 | Aroclor-1248 | 0.50IU |
| 1047-10-1 | Aroclor-1254 | 1.0IU |
| 1075-10-1 | Aroclor-1260 | 1.0IU |

023

024

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026

027

1D
ANALYSIS DATA SHEET

EPA SAMP

HK023

Contract: 5511HQ10

Lab No.: 14772

SAS No.: 55110

SDG No.: HK02

ANALYST

Lab Sample ID: 3549-03

500.0 (g/mL) ML

Lab File ID:

LOW

Date Received: 08/25/90

dec.

Date Extracted: 08/29/90

Rep. Cont./Sonic

SEPF

Date Analyzed: 09/07/90

pH: 7.2

Dilution Factor: 1.00

CONCENTRATION UNITS:

COMPOUND

(ug/L or ug/Kg) UG/L

Q

| | | |
|--------|---------------------|-------|
| 1-1-1 | alpha-BHC | 0.10U |
| 1-1-2 | beta-BHC | 0.10U |
| 1-1-3 | delta-BHC | 0.10U |
| 1-1-4 | gamma-BHC (Lindane) | 0.10U |
| 1-1-5 | Heptachlor | 0.10U |
| 1-1-6 | Aldrin | 0.10U |
| 1-1-7 | Heptachlor epoxide | 0.10U |
| 1-1-8 | Endosulfan I | 0.10U |
| 1-1-9 | Dieldrin | 0.20U |
| 1-1-10 | 4,4'-DDE | 0.20U |
| 1-1-11 | Endrin | 0.20U |
| 1-1-12 | Endosulfan II | 0.20U |
| 1-1-13 | 4,4'-DDD | 0.20U |
| 1-1-14 | Endosulfan sulfate | 0.20U |
| 1-1-15 | 4,4'-DDT | 0.20U |
| 1-1-16 | Methoxychlor | 1.0U |
| 1-1-17 | Endrin ketone | 0.20U |
| 1-1-18 | alpha-Chlordane | 1.0U |
| 1-1-19 | gamma-Chlordane | 1.0U |
| 1-1-20 | Toxaphene | 2.0U |
| 1-1-21 | Aroclor-1016 | 1.0U |
| 1-1-22 | Aroclor-1221 | 1.0U |
| 1-1-23 | Aroclor-1232 | 1.0U |
| 1-1-24 | Aroclor-1242 | 1.0U |
| 1-1-25 | Aroclor-1248 | 1.0U |
| 1-1-26 | Aroclor-1254 | 2.0U |
| 1-1-27 | Aroclor-1260 | 2.0U |

0760

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024

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026

02

10
ANALYSIS DATA SHEET

EPA SAMPLE NO.

HK024

Contract: 5511HQ10

Case No.: 14772

SAS No.: 5511Q

SDG No.: HK021

Lab Sample ID: 3553-04

Lab File ID:

Date Received: 08/27/90

Date Extracted: 09/30/90

Date Analyzed: 09/06/90

Dilution Factor: 1.00

dec.

Cont./Gonc)

SEPF

pH: 7.0

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CONFOUND

G

| | |
|--------------------------|---------|
| -----alpha-BHC | 0.050IU |
| -----beta-BHC | 0.050IU |
| -----delta-BHC | 0.050IU |
| -----gamma-BHC (Lindane) | 0.050IU |
| -----Heptachlor | 0.079I |
| -----Aldrin | 0.050IU |
| -----Heptachlor epoxide | 0.050IU |
| -----Endosulfan I | 0.050IU |
| -----Dieldrin | 0.10IU |
| -----4,4'-DDE | 0.10IU |
| -----Endrin | 0.10IU |
| -----Endosulfan II | 0.10IU |
| -----4,4'-DDD | 0.10IU |
| -----Endosulfan sulfate | 0.10IU |
| -----4,4'-DDT | 0.10IU |
| -----Methoxychlor | 0.50IU |
| -----Endrin ketone | 0.10IU |
| -----alpha-Chlordane | 0.50IU |
| -----gamma-Chlordane | 0.50IU |
| -----Toxaphene | 1.0IU |
| -----Aroclor-1016 | 0.50IU |
| -----Aroclor-1221 | 0.50IU |
| -----Aroclor-1232 | 0.50IU |
| -----Aroclor-1242 | 0.50IU |
| -----Aroclor-1248 | 0.50IU |
| -----Aroclor-1254 | 1.0IU |
| -----Aroclor-1260 | 1.0IU |

HK025

Contract: 5511HQ10

Case No.: 14772

SAS No.: 55110

SDG No.: HK021

WALLS

Lab Sample ID: 3553-05

1000 (g/mL) mL

Lab File ID:

L(W)

Date Received: 08/27/90

dec.

Date Extracted: 08/30/90

... / Cont / Song)

SEPF

Date Analyzed: 09/06/90

• 140 N

pH: 7.2

Dilution Factor: 1.00

COMPOUND

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

6

| | | |
|--------|---------------------|---------|
| 1-1-1 | alpha-BHC | 0.050:U |
| 1-1-2 | beta-BHC | 0.050:U |
| 1-1-3 | delta-BHC | 0.050:U |
| 1-1-4 | gamma-BHC (Lindane) | 0.050:U |
| 1-1-5 | Heptachlor | 0.050:U |
| 1-1-6 | Aldrin | 0.050:U |
| 1-1-7 | Heptachlor epoxide | 0.050:U |
| 1-1-8 | Endosulfan I | 0.050:U |
| 1-1-9 | Dieldrin | 0.10:U |
| 1-1-10 | 4,4'-DDE | 0.10:U |
| 1-1-11 | Endrin | 0.10:U |
| 1-1-12 | Endosulfan II | 0.10:U |
| 1-1-13 | 4,4'-DDD | 0.10:U |
| 1-1-14 | Endosulfan sulfate | 0.10:U |
| 1-1-15 | 4,4'-DDT | 0.10:U |
| 1-1-16 | Methoxychlor | 0.50:U |
| 1-1-17 | Endrin ketone | 0.10:U |
| 1-1-18 | alpha-Chlordane | 0.50:U |
| 1-1-19 | gamma-Chlordane | 0.50:U |
| 1-1-20 | toxaphene | 1.0:U |
| 1-1-21 | Aroclor-1016 | 0.50:U |
| 1-1-22 | Aroclor-1221 | 0.50:U |
| 1-1-23 | Aroclor-1232 | 0.50:U |
| 1-1-24 | Aroclor-1242 | 0.50:U |
| 1-1-25 | Aroclor-1248 | 0.50:U |
| 1-1-26 | Aroclor-1254 | 1.0:U |
| 1-1-27 | Aroclor-1260 | 1.0:U |

0768

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031

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026

028

ORGANIC ANALYSIS DATA SHEET

HK026

Contract: 5511HQ10

Case No.: 14772

SAS No.: 5511Q

SDG No.: HK021

WATER

Lab Sample ID: 7542-04

1000 (µ/mL) ML

Lab File ID: _____

LOW

Date Received: 08/25/90

dec. _____

Date Extracted: 08/29/90

SEPF

Date Analyzed: 09/07/90

N

pH: 7.9

Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

COMPOUND

Q

| | | |
|----------|---------------------|---------|
| 13-14-1 | alpha-BHC | 0.050IU |
| 13-14-2 | beta-BHC | 0.050IU |
| 13-14-3 | delta-BHC | 0.050IU |
| 13-14-4 | gamma-BHC (Lindane) | 0.050IU |
| 13-14-5 | Heptachlor | 0.050IU |
| 13-14-6 | Aldrin | 0.050IU |
| 13-14-7 | Heptachlor epoxide | 0.050IU |
| 13-14-8 | Endosulfan I | 0.10IU |
| 13-14-9 | Dieldrin | 0.10IU |
| 13-14-10 | 4,4'-DDE | 0.10IU |
| 13-14-11 | Endrin | 0.10IU |
| 13-14-12 | Endosulfan II | 0.10IU |
| 13-14-13 | 4,4'-DDD | 0.10IU |
| 13-14-14 | Endosulfan sulfate | 0.10IU |
| 13-14-15 | 4,4'-DDT | 0.10IU |
| 13-14-16 | Methoxychlor | 0.50IU |
| 13-14-17 | Endrin ketone | 0.10IU |
| 13-14-18 | alpha-Chlordane | 0.50IU |
| 13-14-19 | gamma-Chlordane | 0.50IU |
| 13-14-20 | toxaphene | 1.0IU |
| 13-14-21 | Aroclor-1016 | 0.50IU |
| 13-14-22 | Aroclor-1221 | 0.50IU |
| 13-14-23 | Aroclor-1232 | 0.50IU |
| 13-14-24 | Aroclor-1242 | 0.50IU |
| 13-14-25 | Aroclor-1248 | 1.0IU |
| 13-14-26 | Aroclor-1254 | 1.0IU |
| 13-14-27 | Aroclor-1260 | 1.0IU |

0771

029

031

032

026

030

HK028

Contract: 551HQ10

Job No.: 14772

SAS No.: 55110

SDG No.: HK021

Lab Sample ID: 1549-05

Lab File ID:

Date Received: 08/25/90

Date Extracted: 08/29/90

Date Analyzed: 09/07/90

Dilution Factor: 1.00

Concentration Units: (ug/L or ug/Kg) ug/L

Compound

| | |
|---------------------|---------|
| alpha-BHC | 0.0501U |
| beta-BHC | 0.0501U |
| delta-BHC | 0.0501U |
| gamma-BHC (Lindane) | 0.0501U |
| Heptachlor | 0.0501U |
| Aldrin | 0.0501U |
| Heptachlor epoxide | 0.0501U |
| Endosulfan I | 0.0501U |
| Dieldrin | 0.101U |
| 4,4'-DDE | 0.101U |
| Endrin | 0.101U |
| Endosulfan II | 0.101U |
| 4,4'-DDD | 0.101U |
| Endosulfan sulfate | 0.101U |
| 4,4'-DDT | 0.101U |
| Methoxychlor | 0.501U |
| Endrin ketone | 0.101U |
| alpha-Chlordane | 0.501U |
| gamma-Chlordane | 0.501U |
| Toxaphene | 1.01U |
| Aroclor-1016 | 0.501U |
| Aroclor-1221 | 0.501U |
| Aroclor-1232 | 0.501U |
| Aroclor-1242 | 0.501U |
| Aroclor-1248 | 0.501U |
| Aroclor-1254 | 1.01U |
| Aroclor-1260 | 1.01U |

029

031

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033

028

ID

EPA SAMPLE

ANALYSIS DATA SHEET

HK029

Contract: 5511HQ10

Lab No.: 13777

SAS No.: 5511Q

SDG No.: HK021

Lab Sample ID: 3549-06

(ug/mL) ML

Lab File ID:

Date Received: 08/25/90

dec.

Date Extracted: 08/29/90

Sample Source: SEPF

Date Analyzed: 09/07/90

pH: 7.7

Dilution Factor: 1.00

COMPOUND

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

Q

| | |
|---------------------|---------|
| alpha-BHC | 0.0501U |
| gamma-BHC | 0.0501U |
| delta-BHC | 0.0501U |
| gamma-BHC (Lindane) | 0.0501U |
| heptachlor | 0.0501U |
| dieldrin | 0.0501U |
| heptachlor epoxide | 0.0501U |
| Endosulfan I | 0.0501U |
| dieldrin | 0.101U |
| 4,4'-DDE | 0.101U |
| Endrin | 0.101U |
| Endosulfan II | 0.101U |
| 4,4'-DDD | 0.101U |
| Endosulfan sulfate | 0.101U |
| 4,4'-DDT | 0.101U |
| methoxychlor | 0.501U |
| Endrin ketone | 0.101U |
| alpha-Chlordane | 0.501U |
| gamma-Chlordane | 0.501U |
| toxaphene | 1.01U |
| Aroclor-1016 | 0.501U |
| Aroclor-1221 | 0.501U |
| Aroclor-1232 | 0.501U |
| Aroclor-1242 | 0.501U |
| Aroclor-1248 | 0.501U |
| Aroclor-1254 | 1.01U |
| Aroclor-1260 | 1.01U |

029

031

032

033

036

EVAL STD

RT shift DRC

REC ID 3

KAW DATA

ID

EPA SAMPLE NO.

ANALYSIS DATA SHEET

HK031

Contract: 5511HQ10Date Recd.: 14772SAS No.: 5511QSDG No.: HK021Lab Sample ID: 1549-07(g/mL) ML

Lab File ID: _____

Date Received: 08/25/90Date Extracted: 08/29/90Date Analyzed: 09/07/90

dec. _____

Type (Sonic) SEPFDilution Factor: 1.00pH: 7.7

CONCENTRATION UNITS:

COMPOUND

(ug/L or ug/Kg) UG/L

| | |
|--------------------------|---------|
| _____alpha-BHC | 0.050:U |
| _____beta-BHC | 0.050:U |
| _____delta-BHC | 0.050:U |
| _____gamma-BHC (Lindane) | 0.050:U |
| _____heptachlor | 0.050:U |
| _____aldrin | 0.050:U |
| _____heptachlor epoxide | 0.050:U |
| _____Endosulfan I | 0.10:U |
| _____Dieldrin | 0.10:U |
| _____4,4'-DDE | 0.10:U |
| _____Endrin | 0.10:U |
| _____Endosulfan II | 0.10:U |
| _____4,4'-DDD | 0.10:U |
| _____Endosulfan sulfate | 0.10:U |
| _____4,4'-DDT | 0.50:U |
| _____Methoxychlor | 0.10:U |
| _____Endrin ketone | 0.50:U |
| _____alpha-Chlordane | 0.50:U |
| _____gamma-Chlordane | 1.0:U |
| _____toxaphene | 0.50:U |
| _____Aroclor-1016 | 0.50:U |
| _____Aroclor-1221 | 0.50:U |
| _____Aroclor-1232 | 0.50:U |
| _____Aroclor-1242 | 0.50:U |
| _____Aroclor-1248 | 1.0:U |
| _____Aroclor-1254 | 1.0:U |
| _____Aroclor-1260 | |

0410

031

032

033

036

EVAL STD

RT shift DBC

JBC LD R. 45

10
ANALYSIS DATA SHEET

EPA SAMPLE NO.

HK032

Contract: 5511HQ10

SAS No.: 5511Q

SDG No.: HK021

Lab Sample ID: 7549-08

Lab File ID:

Date Received: 08/25/90

Date Extracted: 08/29/90

Date Analyzed: 09/07/90

Dilution Factor: 1.00

pH: 7.7

CONCENTRATION UNITS:

(ug/L or ug/kg) UG/L

1000000

Q

| | |
|---------------------------|---------|
| alpha-BHC | 0.0501U |
| gamma-BHC | 0.0501U |
| delta-BHC | 0.0501U |
| alpha-BHC (Lindane) | 0.0501U |
| Permethrin | 0.0501U |
| Permethrin epoxide | 0.0501U |
| Permethrin I | 0.0501U |
| Permethrin II | 0.101U |
| 1,4'-DDE | 0.101U |
| Permethrin | 0.101U |
| Permethrin II | 0.101U |
| 1,4'-DDD | 0.101U |
| Permethrin sulfate | 0.101U |
| 1,4'-DDT | 0.101U |
| Permethrin | 0.501U |
| Permethrin ketone | 0.101U |
| alpha-Chlordane | 0.501U |
| gamma-Chlordane | 0.501U |
| Polychlorinated biphenyls | 1.01U |
| Polychlorinated biphenyls | 0.501U |
| Polychlorinated biphenyls | 0.501U |
| Polychlorinated biphenyls | 0.501U |
| Polychlorinated biphenyls | 0.501U |
| Polychlorinated biphenyls | 0.501U |
| Polychlorinated biphenyls | 1.01U |
| Polychlorinated biphenyls | 1.01U |

EVAL STD. #
0410
RT shift DBC #1
041
032
033
036
KAW DATA

PESTICIDE ANALYSIS DATA SHEET

HK033

Contract: 5511HQ10

Sample No.: 14772

SAS No.: 55110

SDG No.: HK021

WATER

Lab Sample ID: 5549-09

1000 (g/mL) ML

Lab File ID:

LOW

Date Received: 08/25/90

dec.

Date Extracted: 08/29/90

Seal/Cont/Seal

SEPF

Date Analyzed: 09/07/90

N

pH: 7.8

Dilution Factor: 1.00

COMPOUND

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

Q

| | |
|---------------------|---------|
| alpha-BHC | 0.0501U |
| beta-BHC | 0.0501U |
| delta-BHC | 0.0501U |
| gamma-BHC (Lindane) | 0.0501U |
| Heptachlor | 0.0501U |
| Aldrin | 0.0501U |
| Heptachlor epoxide | 0.0501U |
| Endosulfan I | 0.101U |
| Dieldrin | 0.101U |
| 4,4'-DDE | 0.101U |
| Endrin | 0.101U |
| Endosulfan II | 0.101U |
| 4,4'-DDD | 0.101U |
| Endosulfan sulfate | 0.101U |
| 4,4'-DDT | 0.501U |
| Methoxychlor | 0.101U |
| Endrin ketone | 0.501U |
| alpha-Chlordane | 0.501U |
| gamma-Chlordane | 1.01U |
| Toxaphene | 0.501U |
| Aroclor-1016 | 0.501U |
| Aroclor-1221 | 0.501U |
| Aroclor-1232 | 0.501U |
| Aroclor-1242 | 0.501U |
| Aroclor-1248 | 1.01U |
| Aroclor-1254 | 1.01U |
| Aroclor-1260 | 1.01U |

EVAL STD. #
0410R1 Smith DRC
041

042

033

041
036

HK036

Contract: 5511HQ10

Case No. : 14772

SAS No. : 5511Q

SDG No. : HK021

WATTS

Lab Sample ID: 7549-10

1000 (g/mL) ML

Lab File ID:

1.07W

Date Received: 08/25/90

dec. _____

Date Extracted: 08/29/90

AppF / (Cont / Song)

Date Analyzed: 09/07/90

(Y/N) N

pH: 8.4

Dilution Factor: 1.00

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

COMPOUND

| | | |
|------------|--------------------------|---------|
| 5551-4 | -----alpha-BHC | 0.050IU |
| 5552-1 | -----beta-BHC | 0.050IU |
| 5553-7 | -----delta-BHC | 0.050IU |
| 5554-4 | -----gamma-BHC (Lindane) | 0.050IU |
| 5555-5 | -----Heptachlor | 0.050IU |
| 5556-2 | -----Aldrin | 0.050IU |
| 5557-3 | -----Heptachlor epoxide | 0.050IU |
| 5558-8 | -----Endosulfan I | 0.10IU |
| 5559-1 | -----Dieldrin | 0.10IU |
| 5560-4 | -----4,4'-DDE | 0.10IU |
| 5561-3 | -----Endrin | 0.10IU |
| 5562-9 | -----Endosulfan II | 0.10IU |
| 5563-4 | -----4,4'-DDD | 0.10IU |
| 5564-8 | -----Endosulfan sulfate | 0.10IU |
| 5565-3 | -----4,4'-DDT | 0.50IU |
| 5566-5 | -----Methoxychlor | 0.10IU |
| 5567-5 | -----Endrin ketone | 0.50IU |
| 5568-2 | -----alpha-Chlordane | 0.50IU |
| 5569-2 | -----gamma-Chlordane | 1.0IU |
| 5570-1 | -----foxaphene | 0.50IU |
| 12574-11-2 | -----Aroclor-1016 | 0.50IU |
| 11104-10-2 | -----Aroclor-1221 | 0.50IU |
| 11141-16-5 | -----Aroclor-1232 | 0.50IU |
| 55469-21-9 | -----Aroclor-1242 | 0.50IU |
| 12572-27-6 | -----Aroclor-1248 | 1.0IU |
| 11097-69-1 | -----Aroclor-1254 | 1.0IU |
| 11096-82-5 | -----Aroclor-1260 | |

ANALYSIS DATA SHEET

HK040

Contract: 5511HQ10Lab No.: 14772SAS No.: 5511QSDG No.: HK021ANALYST: WHLRLab Sample ID: 3549-111000 (g/mL) ML

Lab File ID: _____

1000 UWDate Received: 08/25/90

dec. _____

Date Extracted: 08/29/90

1000 Cont/Sonic)

SEPFDate Analyzed: 09/07/90

N _____

pH: 7.5Dilution Factor: 1.00

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

Q

COMPOUND

| | |
|---------------------|---------|
| alpha-BHC | 0.050:U |
| beta-BHC | 0.050:U |
| delta-BHC | 0.050:U |
| gamma-BHC (Lindane) | 0.050:U |
| Heptachlor | 0.050:U |
| Aldrin | 0.050:U |
| Heptachlor epoxide | 0.050:U |
| Endosulfan I | 0.050:U |
| Dieldrin | 0.10:U |
| 4,4'-DDE | 0.10:U |
| Endrin | 0.10:U |
| Endosulfan II | 0.10:U |
| 4,4'-DDD | 0.10:U |
| Endosulfan sulfate | 0.10:U |
| 4,4'-DDT | 0.10:U |
| Methoxyvchlor | 0.50:U |
| Endrin ketone | 0.10:U |
| alpha-Chlordane | 0.50:U |
| gamma-Chlordane | 0.50:U |
| toxaphene | 1.0:U |
| Aroclor-1016 | 0.50:U |
| Aroclor-1221 | 0.50:U |
| Aroclor-1232 | 0.50:U |
| Aroclor-1242 | 0.50:U |
| Aroclor-1248 | 0.50:U |
| Aroclor-1254 | 1.0:U |
| Aroclor-1260 | 1.0:U |

040

041

042

043

1D
ORGANICS ANALYSIS DATA SHEET

HK041

Contract: 5511HQ10

Accession No.: 14772

SAS No.: 55110

SDG No.: HK021

 $\text{var}(\hat{\beta}) = \sigma^2 (X'X)^{-1}$

Lab Sample ID: 7549-12

10000 (g/mL) ML

Lab File ID:

1. DW

Date Received: 08/25/90

dec. _____

Date Extracted: 08/29/90

2-yr / Cont / Done) SEPF

Date Analyzed: 09/07/90

pH: 7.8Dilution Factor: 1.00

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

⑤

| | | |
|-------|---------------------|----------|
| 1-1-1 | alpha-BHC | 0.050 IU |
| 2-2-1 | beta-BHC | 0.050 IU |
| 3-3-1 | delta-BHC | 0.050 IU |
| 1-1-1 | gamma-BHC (Lindane) | 0.050 IU |
| 4-2-1 | Heptachlor | 0.050 IU |
| 5-2-1 | Aldrin | 0.050 IU |
| 2-4-1 | Heptachlor epoxide | 0.050 IU |
| 5-3-1 | Endosulfan I | 0.050 IU |
| 1-1-1 | Dieldrin | 0.10 IU |
| 1-3-1 | 4,4'-DDE | 0.10 IU |
| 1-1-1 | Endrin | 0.10 IU |
| 2-1-1 | Endosulfan II | 0.10 IU |
| 1-4-1 | 4,4'-DDD | 0.10 IU |
| 1-1-1 | Endosulfan sulfate | 0.10 IU |
| 1-1-1 | 4,4'-DDT | 0.10 IU |
| 1-4-1 | Methoxychlor | 0.50 IU |
| 1-4-1 | Endrin ketone | 0.10 IU |
| 5-1-1 | alpha-Chlordane | 0.50 IU |
| 5-1-1 | gamma-Chlordane | 0.50 IU |
| 1-1-1 | toxaphene | 1.0 IU |
| 1-1-1 | Aroclor-1016 | 0.50 IU |
| 1-1-1 | Aroclor-1221 | 0.50 IU |
| 1-1-1 | Aroclor-1232 | 0.50 IU |
| 1-1-1 | Aroclor-1242 | 0.50 IU |
| 1-1-1 | Aroclor-1248 | 0.50 IU |
| 1-1-1 | Aroclor-1254 | 1.0 IU |
| 1-1-1 | Aroclor-1260 | 1.0 IU |

FORM I PEST

0795
1/87 Rev.

EVAL. STD. SOM.

041

242

0413

47

πk.042

Contract: 5511HQ10

Case No. : 14772

SAS No.: 5511Q

SDG No.: HK021

Lab Sample ID: 7549-13

Lab File ID:

Date Received: 08/25/90

Date Extracted: 08/29/90

Date Analyzed: 09/22/90

Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Q

COMPOUND

| COMPOUND | (kg) |
|--------------------------|-------|
| -----alpha-BHC | 21 U |
| -----beta-BHC | 21 U |
| -----delta-BHC | 21 U |
| -----gamma-BHC (Lindane) | 21 U |
| -----Heptachlor | 21 U |
| -----Aldrin | 21 U |
| -----Heptachlor epoxide | 21 U |
| -----Endosulfan I | 42 U |
| -----Dieldrin | 42 U |
| -----4,4'-DDE | 42 U |
| -----Endrin | 42 U |
| -----Endosulfan II | 42 U |
| -----4,4'-DDD | 42 U |
| -----Endosulfan sulfate | 42 U |
| -----4,4'-DDT | 210 U |
| -----Methoxychlor | 42 U |
| -----Endrin ketone | 210 U |
| -----alpha-Chlordane | 210 U |
| -----gamma-Chlordane | 420 U |
| -----toxaphene | 210 U |
| -----Aroclor-1016 | 210 U |
| -----Aroclor-1221 | 210 U |
| -----Aroclor-1232 | 210 U |
| -----Aroclor-1242 | 210 U |
| -----Aroclor-1248 | 420 U |
| -----Aroclor-1254 | 420 U |
| -----Aroclor-1260 | |

0798

1/87 Rev.

Pesticide ANALYTICS DATA SHEET

-043

1.1

Contract: 5511HQ10

Spec No.: 14772

SAS No.: 5511Q

SDG No.: HK021

1.2 (Water) WYLLA

Lab Sample ID: T349-14

1.3 1000 (g/mL) ML

Lab File ID:

1.4 (Wet Weight) TLOW

Date Received: 13/25/90

1.5 1000 dec.

Date Extracted: 13/29/90

1.6 (Sept-Cont/Sond) SEFF

Date Analyzed: 19/07/90

1.7 (Y/N) N pH: 7.8

Dilution Factor: 1.00

CONCENTRATION UNITS:

COMPOUND

(ug/L or ug/Kg) UG/L

Q

| | | |
|---------|---------------------|---------|
| 1.8 1.1 | Alpha-BHC | 0.0501U |
| 1.9 1.2 | Beta-BHC | 0.0501U |
| 2.0 1.3 | Delta-BHC | 0.0501U |
| 2.1 1.4 | Gamma-BHC (Lindane) | 0.0501U |
| 2.2 1.5 | Heptachlor | 0.0501U |
| 2.3 1.6 | Aldrin | 0.0501U |
| 2.4 1.7 | Heptachlor epoxide | 0.0501U |
| 2.5 1.8 | Endosulfan I | 0.0501U |
| 2.6 1.9 | Dieldrin | 0.101U |
| 2.7 2.0 | 4,4'-DDE | 0.101U |
| 2.8 2.1 | Endrin | 0.101U |
| 2.9 2.2 | Endosulfan II | 0.101U |
| 3.0 2.3 | 4,4'-DDD | 0.101U |
| 3.1 2.4 | Endosulfan sulfate | 0.101U |
| 3.2 2.5 | 4,4'-DDT | 0.101U |
| 3.3 2.6 | Methoxychlor | 0.501U |
| 3.4 2.7 | Endrin ketone | 0.101U |
| 3.5 2.8 | alpha-Chlordane | 0.501U |
| 3.6 2.9 | gamma-Chlordane | 0.501U |
| 3.7 3.0 | Toxaphene | 1.01U |
| 3.8 3.1 | Aroclor-1016 | 0.501U |
| 3.9 3.2 | Aroclor-1221 | 0.501U |
| 4.0 3.3 | Aroclor-1232 | 0.501U |
| 4.1 3.4 | Aroclor-1242 | 0.501U |
| 4.2 3.5 | Aroclor-1248 | 0.501U |
| 4.3 3.6 | Aroclor-1254 | 1.01U |
| 4.4 3.7 | Aroclor-1260 | 1.01U |

0803

FORM I PEST

1/87 Rev.

0413

EVAL STD. #1
SOH.

RT Smith DBC #1
STD. SOH #1
1st
202
M

044

1D

EPA SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS DATA SHEET

HK044

000

Contract: 5511HQ10

Case No.: 14772

SAS No.: 5511Q

SDG No.: HK021

Water) SOH

Lab Sample ID: 5549-15

50.0 (g/mL) G

Lab File ID:

Unmanned) LOW

Date Received: 08/25/90

1st dec. 15

dec.

Date Extracted: 08/28/90

StepF/Cont/Sonc)

SONC

Date Analyzed: 09/21/90

(Y/N) Y

pH: 6.8

Dilution Factor: 1.00

CONCENTRATION UNITS:

COMPOUND

(ug/L or ug/Kg) UG/LG

Q

| | | | |
|------------|---------------------|-----|----|
| 11000-01-1 | alpha-BHC | 19 | UU |
| 11000-01-2 | beta-BHC | 19 | UU |
| 11000-01-3 | delta-BHC | 19 | UU |
| 11000-01-4 | gamma-BHC (Lindane) | 19 | UU |
| 11000-01-5 | Heptachlor | 19 | UU |
| 11000-01-6 | Aldrin | 19 | UU |
| 11000-01-7 | Heptachlor epoxide | 19 | UU |
| 11000-01-8 | Endosulfan I | 19 | UU |
| 11000-01-9 | Dieldrin | 38 | UU |
| 11000-02-1 | 4,4'-DDE | 38 | UU |
| 11000-02-2 | Endrin | 38 | UU |
| 11000-02-3 | Endosulfan II | 38 | UU |
| 11000-02-4 | 4,4'-DDD | 38 | UU |
| 11000-02-5 | Endosulfan sulfate | 38 | UU |
| 11000-02-6 | 4,4'-DDT | 38 | UU |
| 11000-02-7 | Methoxychlor | 190 | UU |
| 11000-02-8 | Endrin ketone | 38 | UU |
| 11000-02-9 | alpha-Chlordane | 190 | UU |
| 11000-03-1 | gamma-Chlordane | 190 | UU |
| 11000-03-2 | Toxaphene | 380 | UU |
| 11000-03-3 | Aroclor-1016 | 190 | UU |
| 11000-03-4 | Aroclor-1221 | 190 | UU |
| 11000-03-5 | Aroclor-1232 | 190 | UU |
| 11000-03-6 | Aroclor-1242 | 190 | UU |
| 11000-03-7 | Aroclor-1248 | 190 | UU |
| 11000-03-8 | Aroclor-1254 | 380 | UU |
| 11000-03-9 | Aroclor-1260 | 380 | UU |

